MODERN PACKAGING

DESIGNED AND PHOTOGRAPHED FOR MODERN PACKAGING BY RAY CICERO

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Ultrasonics: when? p. 100 / Background, p. 43 / Cost Cutters, p. 124

JULY 1961

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Vitafilm, a Polyvinyl chloride—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

IN THIS ISSUE OF MODERN

JULY 1961 / VOLUME 34 / NO. 11

89 **Dehydration comes back**
The boom is on in dehydrated foods—and it bears close watching by everyone because it may provide the ultimate solution to moisture-protective packaging at low cost. Peak interest is focused on new freeze-drying techniques, but whatever the method, dehydration is changing eating habits and calling for new packaging concepts. This article explores the various processes, the packaging considerations and the implications of a "wartime stepchild" that has suddenly become a major contender in the field of convenience foods.
General interest.

95 **Ultralight tinplate in use**
The steel industry's answer to the spirited challenge of aluminum cans gets an initial market test as Minute Maid tries ultralight tinplate cans for frozen orange-juice concentrate. This application will provide a good comparison with aluminum and composite containers, which the packager also is using. Minute Maid reports it was attracted to the thinner can plate by a combination of low cost and ease of handling.
Special interest: foods, beverages, other liquids.

96 **Faster feed for pouching**
Significant to all pouch packagers is news of a new four-head form-fill-seal machine which boosts production of International portion-packed salt by up to 250%. The key to this breakthrough is increased speed of product feed, achieved by simple, ball-type valves operating accurately and volumetrically to fill the product at the point where the pouch is formed.
A production-methods article.

100 **Ultrasonics: when?**

Developmental work by eight electronics firms is removing the barriers to commercial use of ultrasonic sealing of foil and films. When all the problems are solved, this high-speed sealing technique will offer packagers in many fields the benefits of positive bonding, potential low cost and virtually heatless sealing that will not affect delicate products or films.
A production-methods article.

105 **Dual design**
Boyer Chemical integrates two opposing design concepts to give a new label look to its packaged household chemicals. A family design unifies a basic line of loosely related products while distinctive "custom" labeling gives drama and stand-out shelf appeal to specialty items.
Special interest: sales, advertising, designers.

106 **Kraft Portion Control**
A *Success Story* (see cover). Less than 10 years ago, Kraft pioneered the idea of pre-packaged portion-control servings, a volume-feeding concept that is big business today. Despite competition, the company stays on top through aggressive promotion and constant improvement of production techniques it created. And Kraft's original package—a semi-rigid sealed vinyl cup—has stood the test of time with only minor changes.
General interest.

110 **Gastight plastic dairy cup**
Recent advances in injection molding add utility and consumer convenience to Maggio's low-cost, all-plastic cup container for ricotta cheese. The polyethylene cup's barrier-film lid is welded permanently to a break-away rim on the package. The hermetically sealed, nitrogen-filled container is reported to double product shelf life.
A production-methods article.

FRONT FEATURES

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"Action on machinery standards."

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113 **Plastics in packaging**
The growing importance of plastics to packaging is documented by exhibits at the Society of the Plastics Industry's ninth national show and conference in New York. This special insert includes extracts from papers given at a panel session on "Plastics in Packaging," plus news on plastics developments with packaging interest. General interest.

119 **Payoff in overhead**
Libby, McNeill & Libby achieves the cost-cutting equivalent of a second floor in a one-story building via imaginative use of overhead space. This packager's new canned-meat plant is fitted with seven vertical case sealers, a series of powered conveyors that carry the cases 15 feet above the floor and two huge automatic palletless palletizers that each handle an average of 50 cases per min. These efficient facilities have led to a sharp expansion in production capacity. A production-methods article.

123 **Childproof closure**
How to keep curious tots from opening bottles containing drugs or other potentially harmful products? An effective solution is provided by a two-piece molded-plastic safety cap adopted for bottled flavored aspirin by Howe & Co. The locking closure can be removed only by applying two hand actions—downward pressure and a turning motion—that cannot normally be coordinated by children under six years of age. Special interest: drugs, insecticides, chemicals.

126 **Molded polystyrene bottle**

An English company's injection-molded polystyrene bottle for vinegar opens the way to broad new packaging possibilities for this lightweight plastic. The result of a technical breakthrough in mass production, the graceful decanter is fabricated in two sections sealed with solvent adhesive. It offers an 87.5% reduction in shipping weight compared with glass, with a virtually identical shipping-breakage factor. Special interest: foods, drugs, beverages.

TECHNICAL & ENGINEERING

129 **Ultrasonic sealing of foil**
Here is a report from a major aluminum supplier detailing the principles and development of a radical heatless foil-sealing technique that promises widespread application in packaging. (Also see the article beginning on p. 100.)
In current commercial operations for splicing foil rolls, the smooth and inconspicuous joint formed by ultrasonics is found to have 99% of the strength of the parent foil. The technique may soon be extended to the sealing of rigid and flexible aluminum containers. *By John H. Alden.*

134 **A new polymer for wax**
Outstanding performance properties are exhibited by a new Du Pont copolymer of ethylene and vinyl acetate, designed as a modifier or extender of paraffin wax in typical coating applications. In test uses, the polymer-wax coating is reported to offer an exceptional water-vapor barrier and to provide specific adhesive properties that permit heat sealing of most common packaging materials, including paperboard, foil, glassine and films. *By L. W. Blight and D. C. Sutherland.*

142 **Questions & Answers**
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MP

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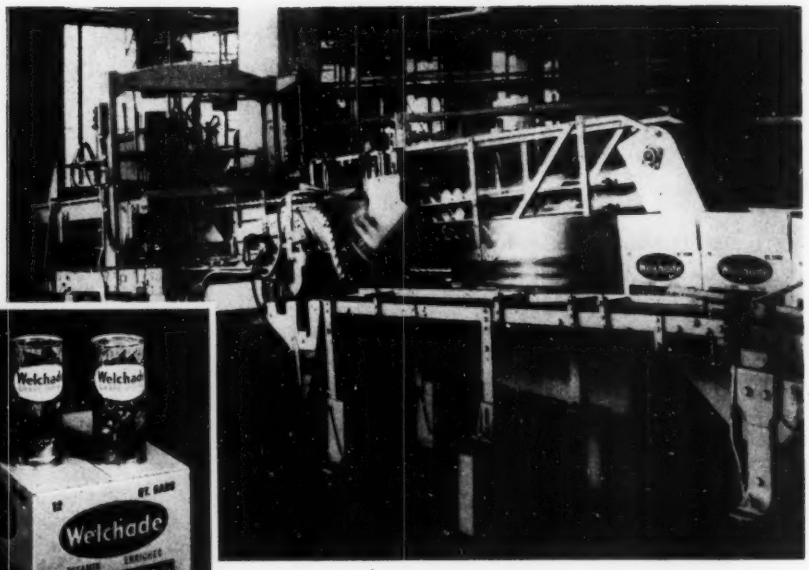
Welch's Plant Productivity Increased 100% with C&K Packing Line



Knocked down cases are formed (left) and then automatically positioned at can packer funnel. Packer (center) loads 12 qt. cans into case and automatically discharges on conveyor to sealing machine. Because of the high capacity of these machines, Welchade production could be stepped up without equipment change.

Welch Finds C&K Packing Equipment Superior with Installation Easy to Maintain

"Requires only routine preventive maintenance," says Plant Manager Bernard C. Robbins.

Increased market demand for its 32-oz. canned Welchade made it necessary for the Welch Grape Juice Company to streamline operations on this product. The switch from hand to automatic packing was made in the plant at North East Pa., late in 1959 by installing a Crompton & Knowles Model CK/SMF-2 Standard Can Packer and a Model CKCO Case-Opener-Former-Positioner.

Spectacular Results Achieved

This C&K equipment increased packing production from 180 to 240-cans-per-minute; an increase of 33%. Welchade production could be stepped up even further without equipment change. Overall results have increased plant productivity 100%. It is interesting to note that Welch recently installed a Model CK/SMF-2 Standard Can Packer at its plant in Kennewick, Wash.

Bernard C. Robbins, plant manager, characterized the Crompton & Knowles equipment as "superior" and reported that only "routine preventive maintenance" is required.

Welch's experience is one of many recent instances in which new speed and economy followed a contact with Crompton & Knowles Packaging Corp. Whether your need is to meet a simple packing or wrapping operation, or for a completely integrated, multiple-operation packaging project, we offer you the services of a highly-specialized engineering organization geared to find the most efficient answer. C&K makes high-speed automatic Wrap-King lines for wrapping simple or complex shapes, and Redington cartoning and wrapping lines.

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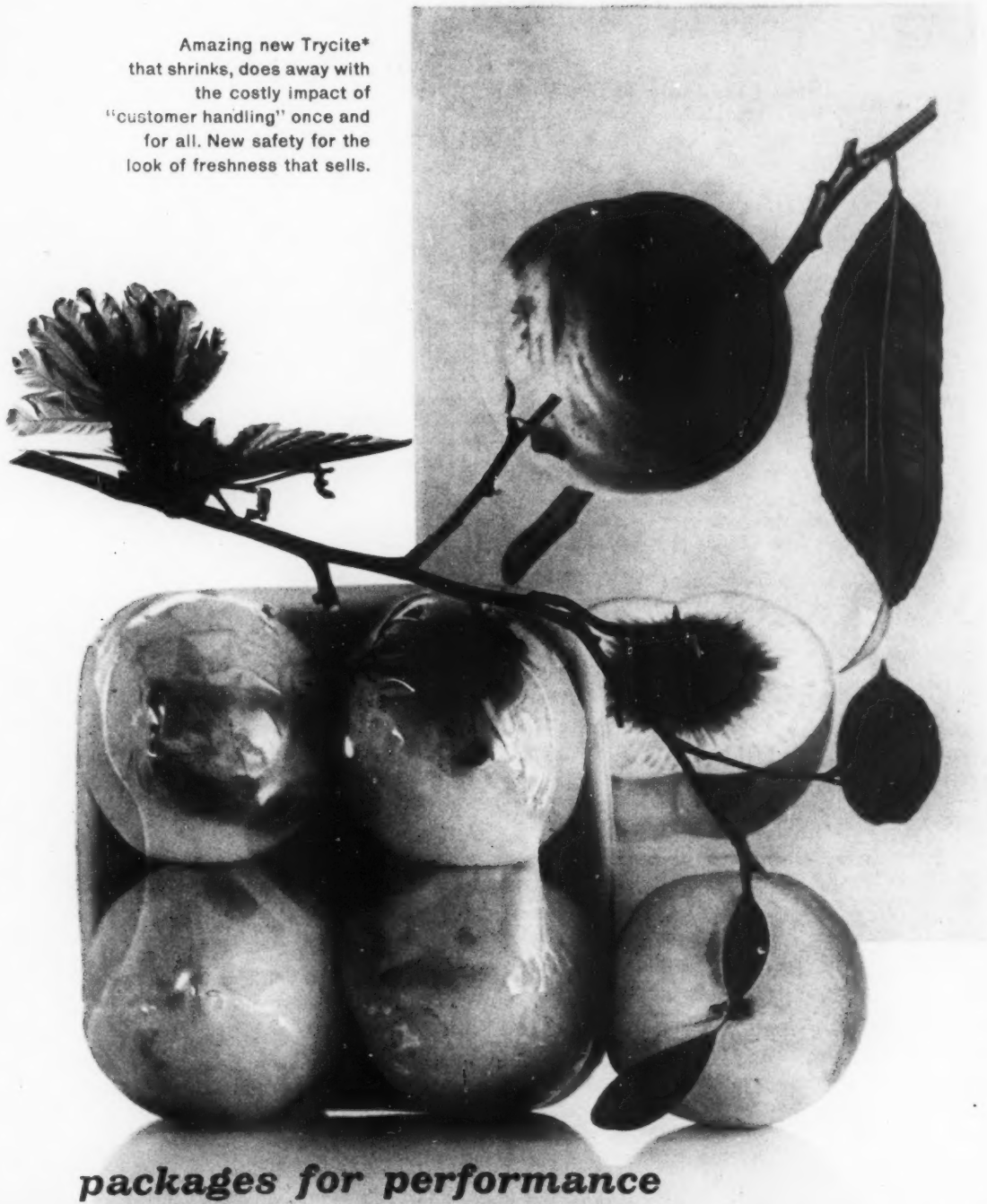

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*T. M. The Dow Chemical Company

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  You will eliminate investment in large inventories of assorted display containers and shelf-packs

  Your costs of warehousing packaging materials will virtually disappear

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- Gentle, positive handling of your products at speeds *up to 600 packages per minute* is insured on Scandia patented, automatic, all-rotary-motion collators.

- Scandia's 40-year reputation for rugged, dependable machinery is built into every Scandia Bundler—seven models over a wide price range to fit your exact production needs.

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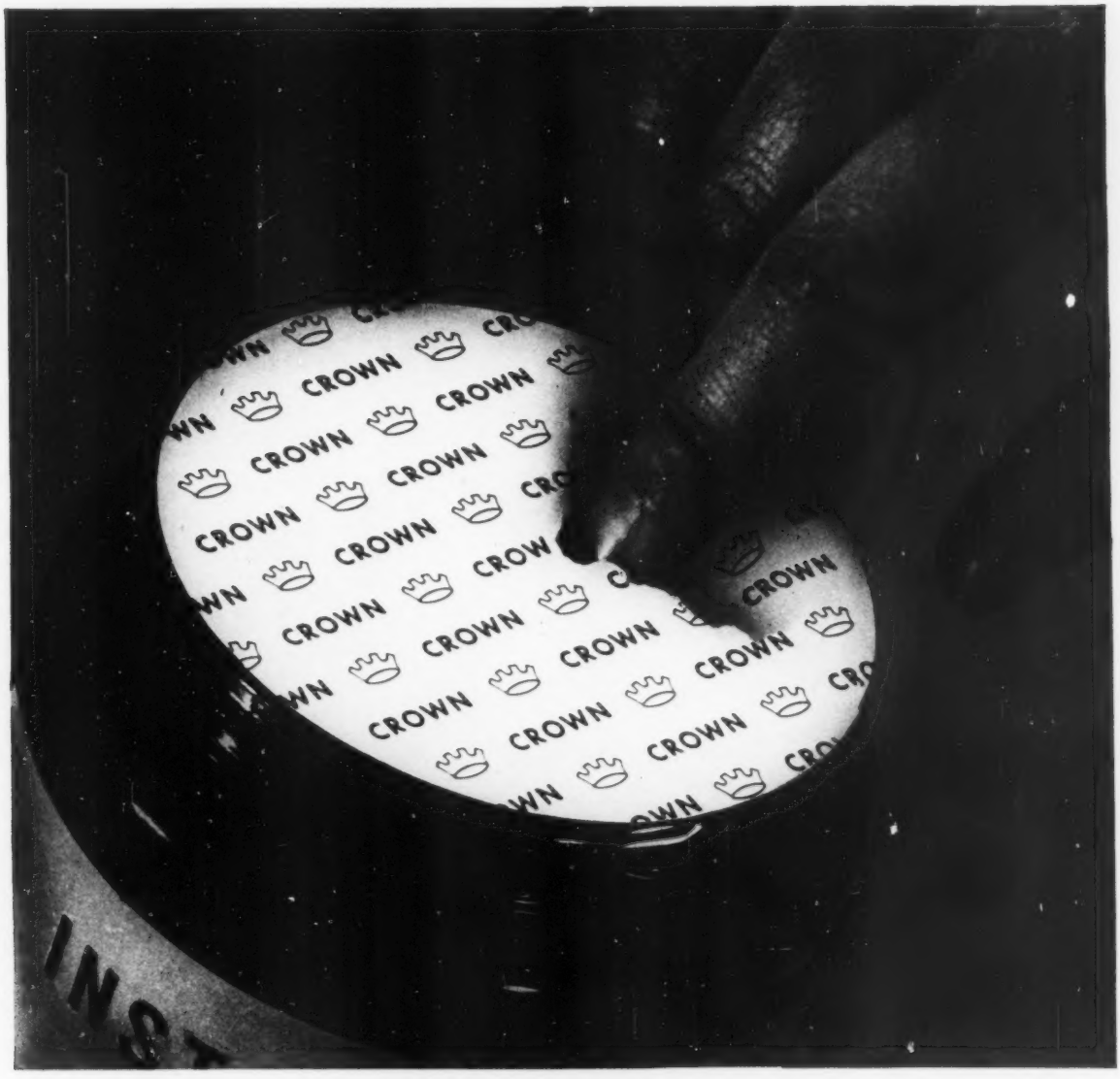

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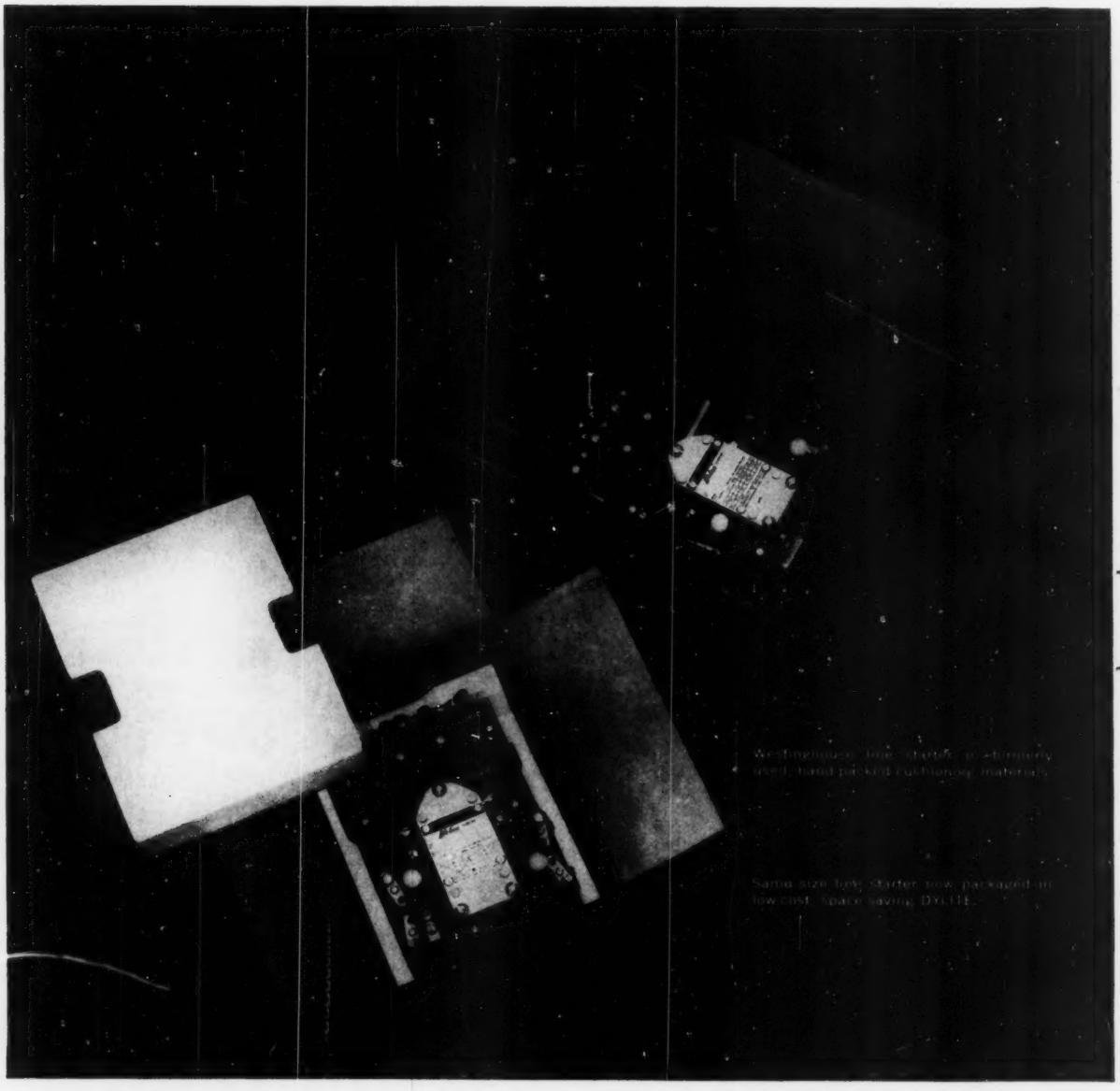
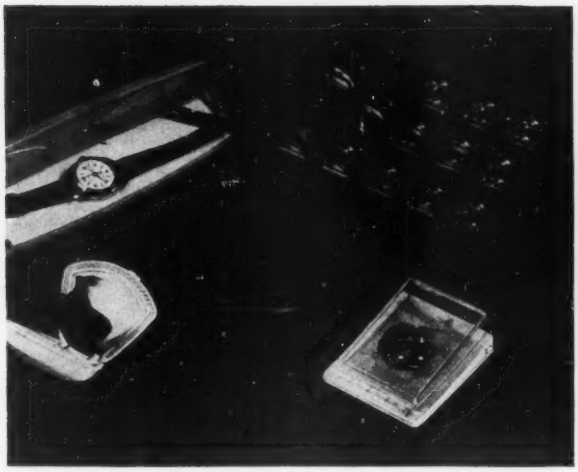
This Westinghouse motor starter is cushioned in pads of DYLITE® expandable polystyrene. DYLITE pockets this delicate instrument better than previously used molded pulp and corrugated boxboard materials. It enables Westinghouse to cut their package size 50% . . . and reduce material, labor and shipping costs.

A DYLITE package is extremely lightweight . . . it's easy to pack and load. This amazing plastic is waterproof, non-dusting and it's an excellent thermal insulator. DYLITE can be molded easily to almost any size or shape. It can be colored and decorated, too. Use it as a cushioning material in *all* types of shipping containers. *DYLITE parts molded by Expandable Plastics Corporation, Akron, Ohio*





Jewelry cases with display appeal

Quality products deserve an individually tailored display case to compliment their beauty and value. These attractive Rocket jewelry cases provide such sales appeal.

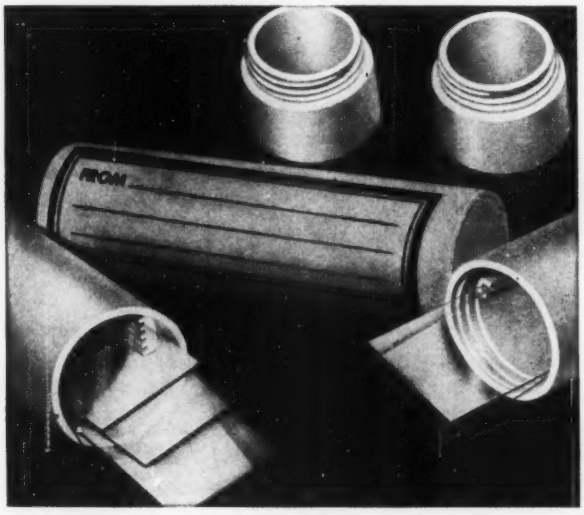
The cases are molded from DYLENE® polystyrene, a Koppers plastic that is ideal for packages demanding dimensional stability, protection and precision engineering. DYLENE has inherent strength and impact resistance. It permits a variety of surface textures, colors, shapes and molds easily for unlimited packaging applications.

DYLENE cases manufactured by Rocket Jewelry Box Co., New York 51, N.Y.

New cap has a "snip-off" tip

With this new DYLAN® polyethylene cap, housewives just cut off the tip and get a measured flow of Liquid Lux with every squeeze of the bottle. It eliminates bothersome measuring by capsful. The new "snip-off" cap tightly grips a threaded neck on the plastic bottle... no drips, no leaks.

DYLAN polyethylene has a smooth, glossy finish. It won't chip or dent. DYLAN is durable, lightweight, rust-proof, and has good chemical resistance. It molds easily to any size, shape or color closure. This versatile plastic adds consumer appeal to the top of *any* detergent, cosmetic, food, chemical or pharmaceutical package. *DYLAN caps molded by Augusta Plastics, Inc., Bronx, New York • Formold Plastics, Blue Island, Ill. • Gibson Associates, Inc., Cranford, N.J.*



Container keeps glass slides safe

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This SUPER DYLAN high-density polyethylene container needs no interior cushioning materials. It's convenient to store, easy to ship; it cuts mailing costs. And because this plastic is heat resistant, the container can be sterilized and reused. *SUPER DYLAN containers molded by Monrovia Plastics, Monrovia, Calif.*

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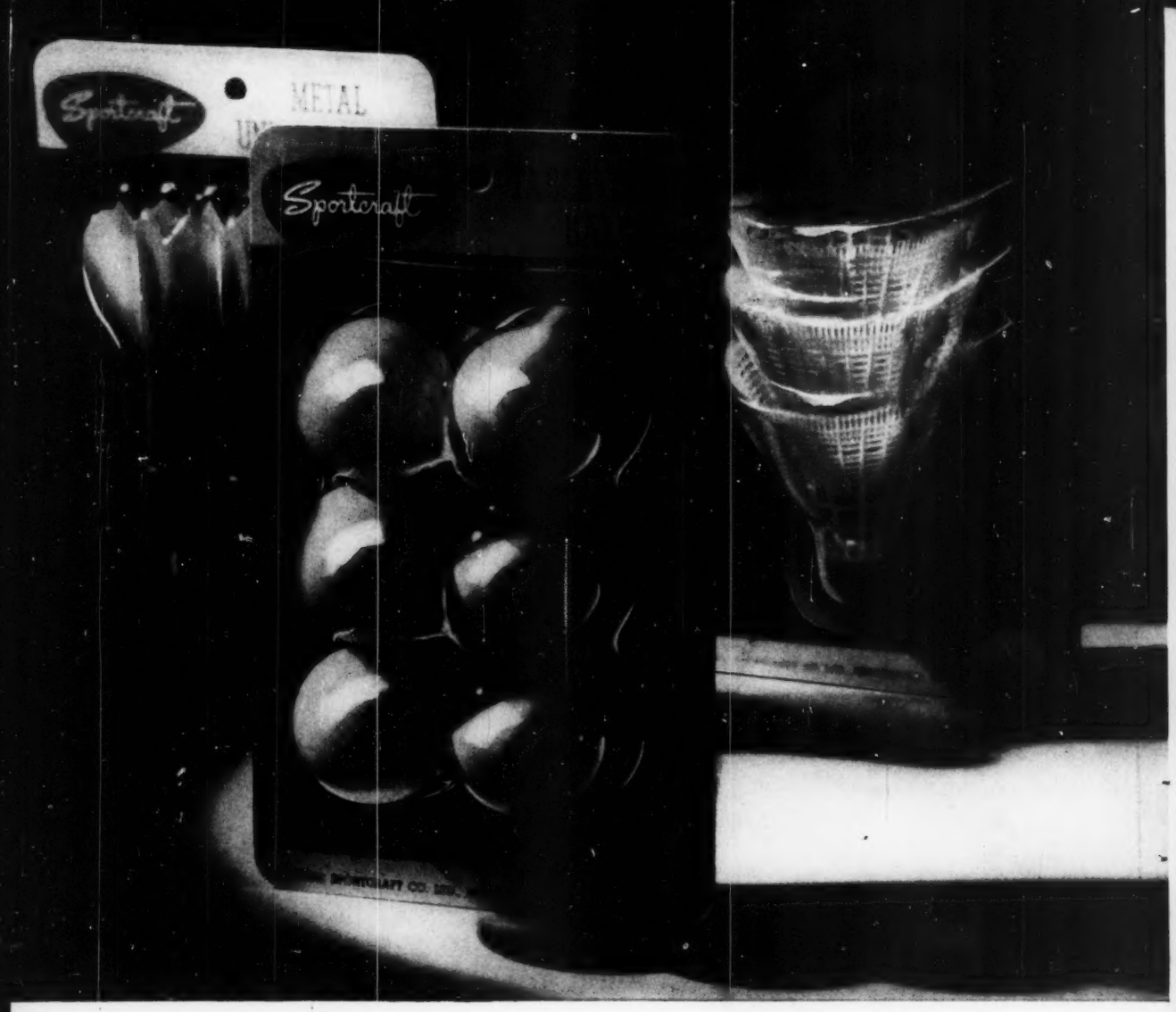

Sporting goods look great—in DAVIS ACETATE

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Davis Acetate was selected by Western Printing Co. for these General Sportcraft Co., Ltd. products because they know from experience that it will remain clear, strong and flexible until the products are sold.

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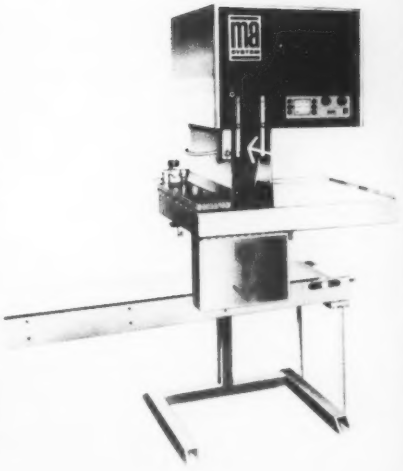

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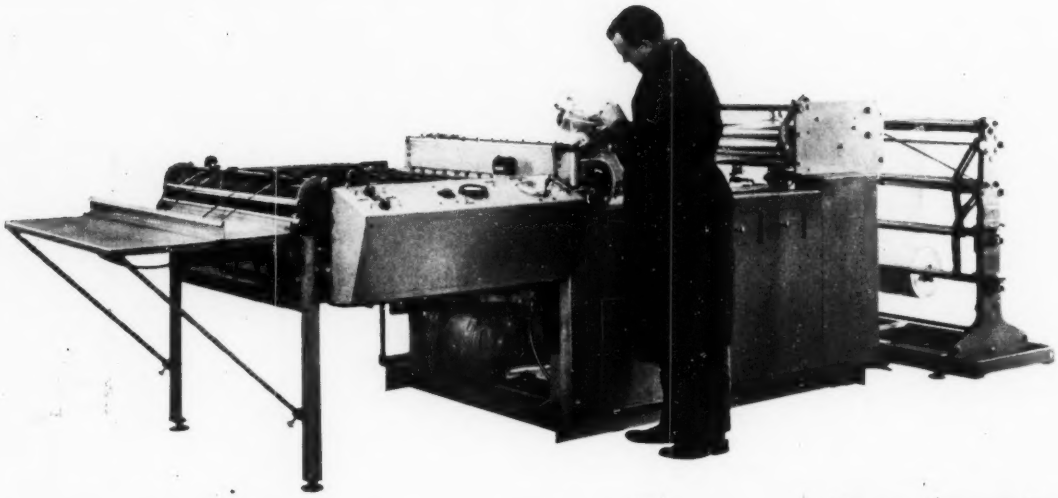
SIMPLEX 200 SERIES



SIMPLEX MODEL 210 COMBINATION BAG MACHINE WITH BOTTOM SEAL ATTACHMENT

NEW CROSS SEAL ATTACHMENT, built-in for quick changeover on the Simplex 200 Series side weld models, adds bottom seal bag production versatility to these proven machines. Performance features include: Exclusive, multiple-blade, short stroke knife action which will cut at top machine speeds • Bottom seal bags at speeds up to 125 cycles • Two printed webs for 250 bags per minute • Positive and adjustable sealing pressure • Extra-strength relaxed-type seals • Fixed skirt length.

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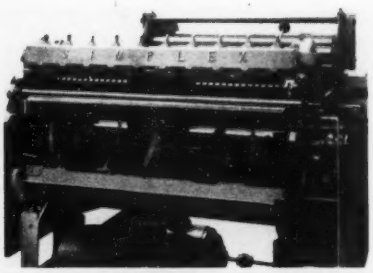
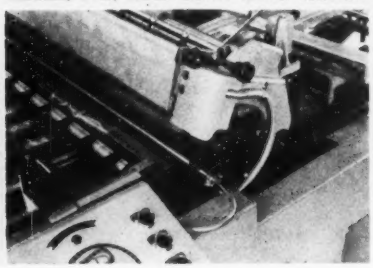


PARTIALLY ASSEMBLED VIEW SHOWS SEALER, PAD AND HOLD-DOWN ASSEMBLY

SEALER, PAD, HOLD-DOWN KNIFE SECTION



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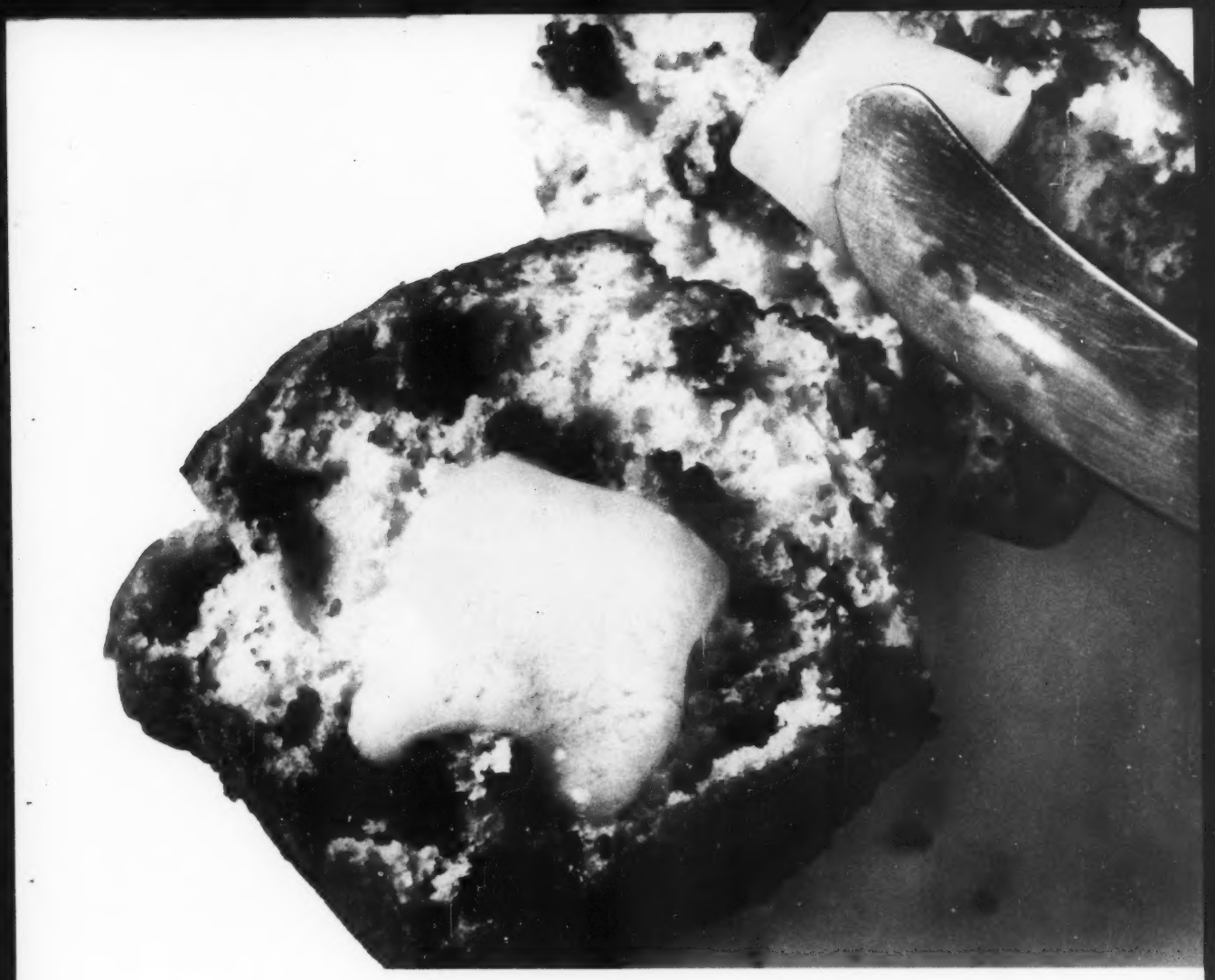

How Lord Baltimore perfects a package that sells on sight

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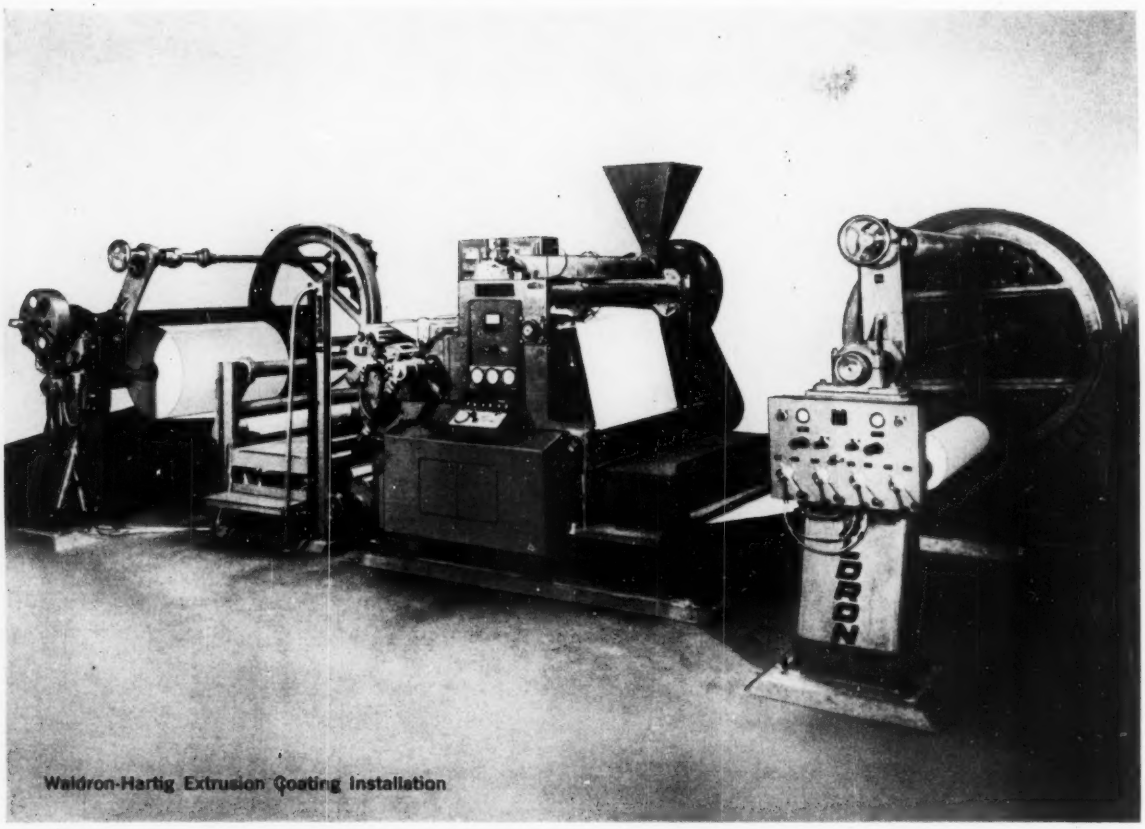
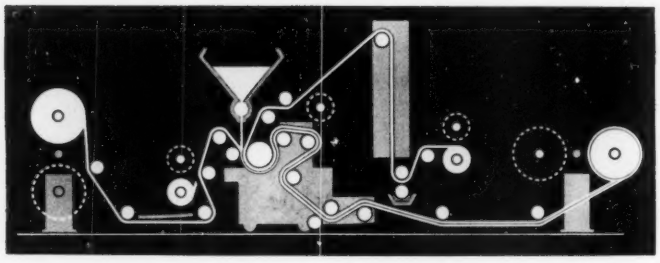


Waldron-Hartig Extrusion Coating Installation

Integrated web process systems

for Coating, Laminating & Casting



A complete line of standard unwinds, winds, coaters, laminators, embossers, extruders and ovens are especially combined for your converting process needs—proven units of the latest design!

Waldron-Hartig provides complete project responsibility. Qualified representatives are available to discuss your needs. Write for information.

WALDRON-HARTIG

technical competence in web process machinery

WALDRON-HARTIG, Box 791, New Brunswick, N. J./a division of Midland-Ross Corporation MR

do you use extrusion coated and laminated materials in your packaging *if so...which of these problems are yours?*

1. Gauge Control 2. Clarity 3. Batch uniformity & consistency 4. Heat Sealing 5. Leakers 6. Waste 7. Machine Performance 8. Field Performance 9. Lamination Bond 10. Shelf Life 11. Proper Specification for Product 12. Strength 13. Fabricated Pouches or Bags 14. Technical Aid 15. Quality Control 16. Service

Solve your problems with Cellu-Craft's consistently trouble-free extrusion coatings and laminates produced on the industry's most rigidly controlled equipment!

WRITE TODAY FOR FULL INFORMATION ON HOW TO SOLVE YOUR EXTRUSION COATING AND LAMINATE PROBLEMS. NO OBLIGATION.

LAMINEX DIVISION

CELLU-CRAFT

Products Corporation

NEW HYDE PARK, NEW YORK

Telephone PRimrose 5-8000. Sales Offices in principal cities

DESIGNING of flexible packages. **PRINTING:** Gloiux® Gravure, Process, Line & Tone Flexography on Cellophane, Polyethylene, Glassine, Extrusion Coatings, Laminations, Acetate, Pliofilm, Foil. **EXTRUSION COATINGS AND LAMINATIONS** on Cellophane, Foils, Mylars, Papers. **CONVERTING:** Rolls, Sheets, Bags, Pouches, Envelopes.

Cellu-Craft Products Corp., Laminex Division, 1401 Fourth Avenue, New Hyde Park, N.Y.

Gentlemen: Please send me full details on how I can solve the Extrusion Coating and Laminate problems checked below:

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16

OTHER PROBLEMS _____

Which Materials Are of Interest To You: (Check off)

☐ Mylar/Poly ☐ Mylar/Saran/Poly ☐ Cellophane/Poly ☐ Saran/Cello/Poly ☐ Cello/Poly/Foil/Poly ☐ Paper/Poly/Foil/Poly ☐ Paper/Poly/Paper ☐ Paper/Foil/Poly-Adhesive Mounted ☐ Foil/Poly/Paper Adhesive Mounted ☐ Foil/Poly/Paper/Poly ☐ Cello/Poly/Cello ☐ Acetate/Poly ☐ Kraft/Poly ☐ Sulphite/Poly ☐ Pouch Papers/Poly ☐ Fabric/Poly ☐ Burlap/Poly ☐ Other constructions (describe below)

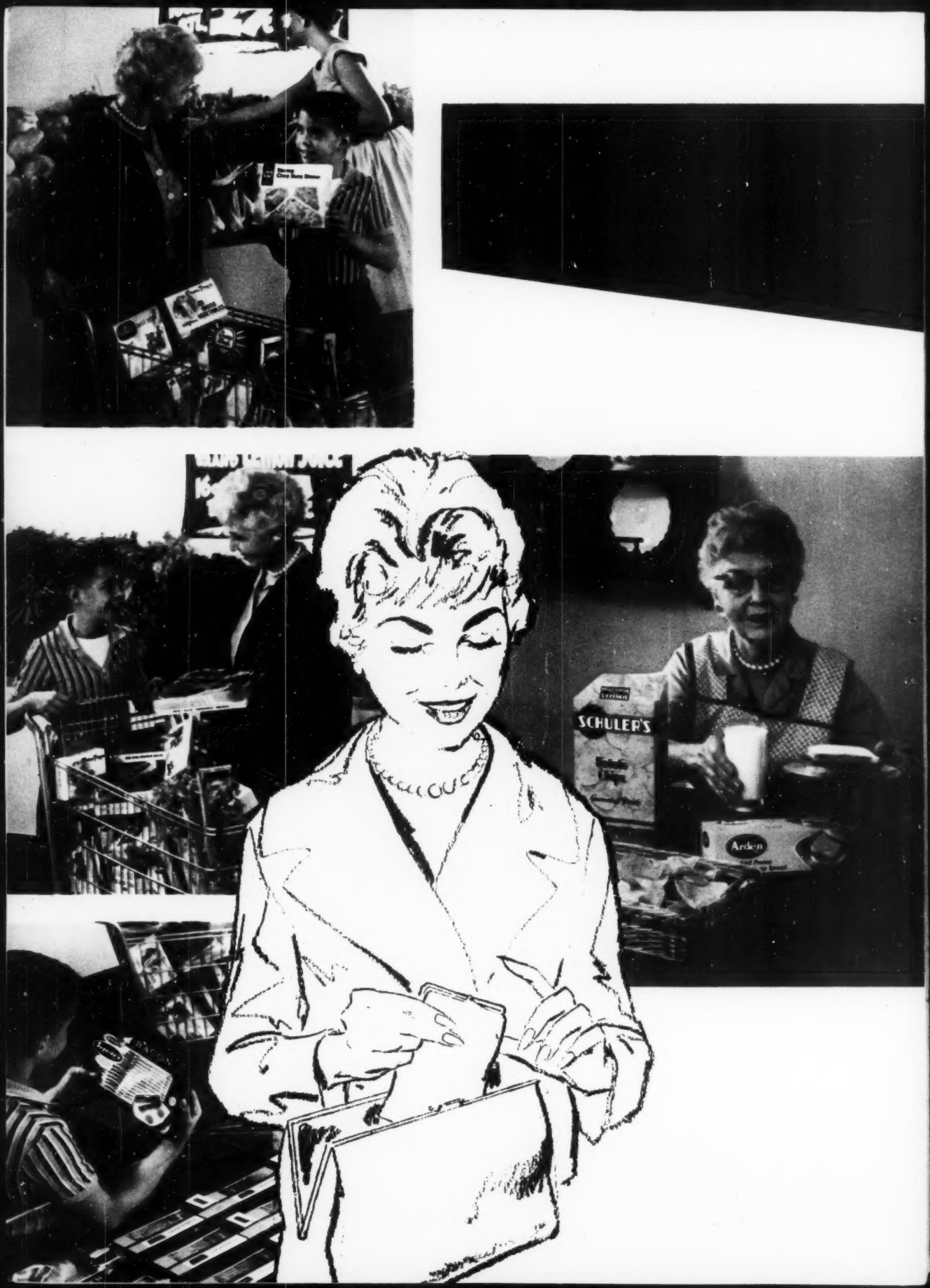
_____

Company _____

Address _____

City _____ Zone ____ State _____

Name _____ Title _____ m


SCHULER'S
Arden

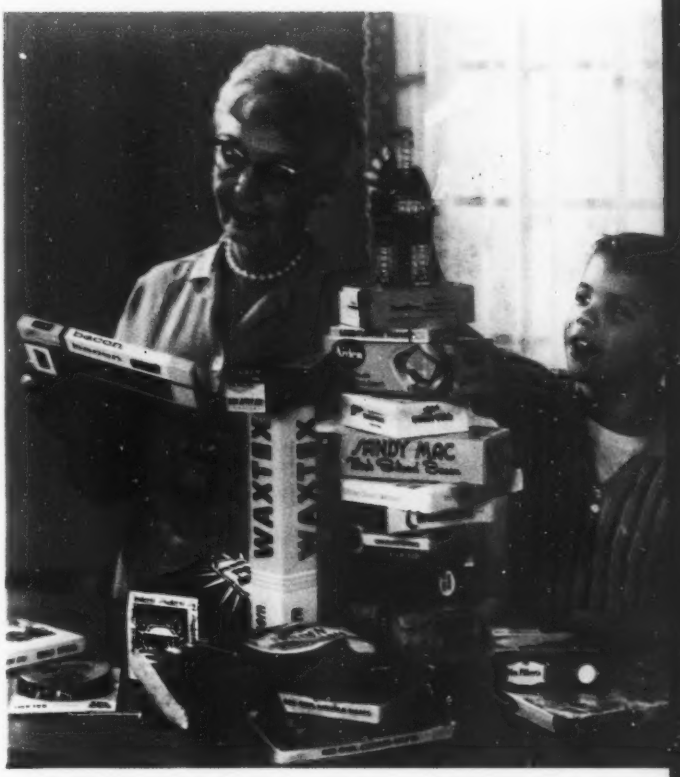
appeal to all ages

marathon

Colorful, convenient packages—that's the key that unlocks the door to "pick up and purchase" by young and old alike . . . makes 'em *buy*, not *pass* by.

Marathon printing–whether a simple line of how-to-prepare instructions or a complex, multi-color pictorial—puts extra appeal aplenty into packaging.

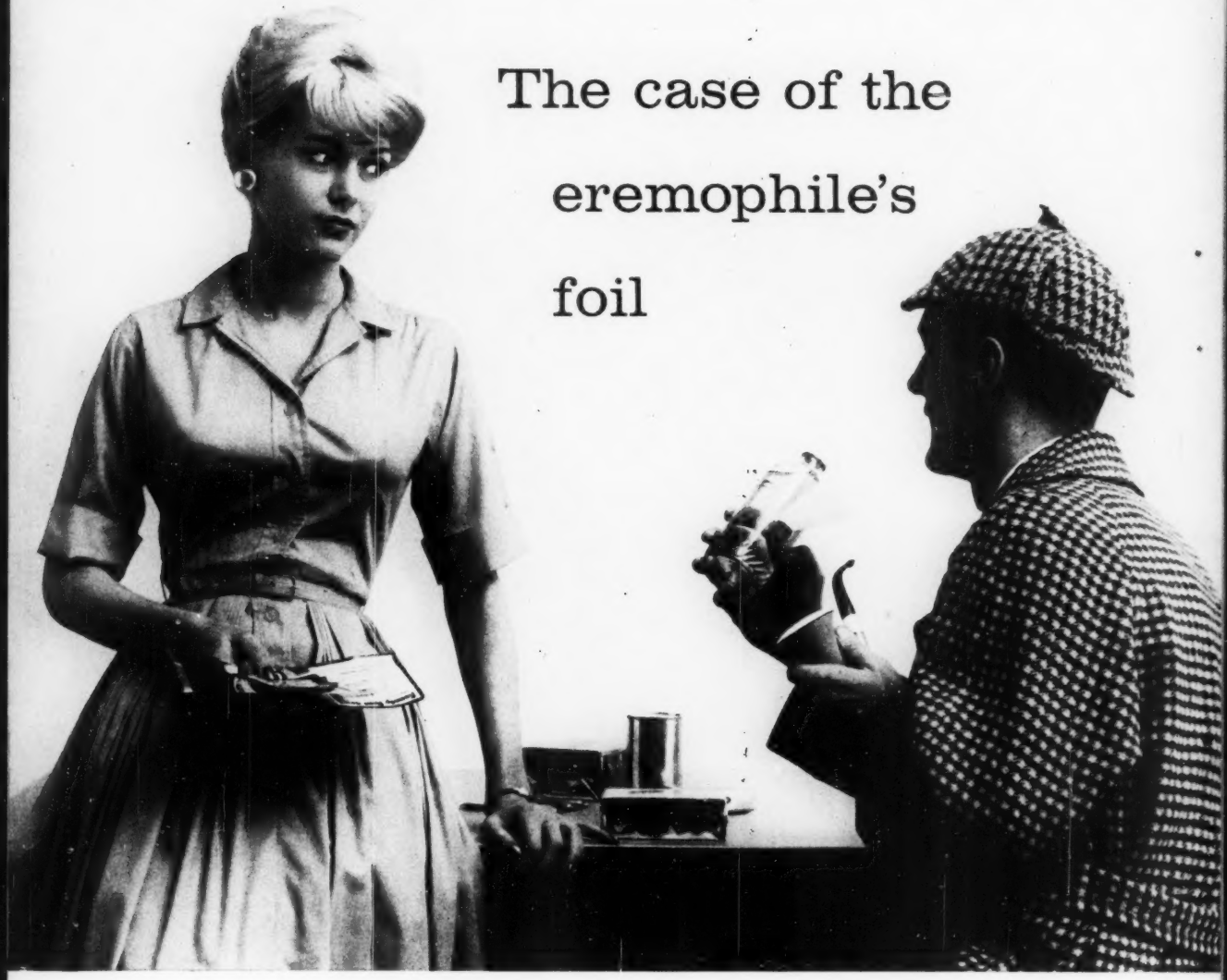
Should sharp printing be a problem—on paper, paperboard, film or foil—here's a thought to imprint in your mind: *Marathon has the answer.*



Marathon, A Division of American Can Company, Menasha, Wisconsin. In Canada: Marathon Packages Limited, 100 Sterling Road, Toronto 3.

For packaging . . . and ideas . . .

you can't beat marathon



The case of the eremophile's foil

FEARLESS FULLER: Just wrapped up a very sticky case, Miss Watson.

MISS WATSON: Tell me all the devious details, Fearless.

FEARLESS FULLER: Well, I call it "The case of the eremophile's foil."

MISS WATSON: I know what foil is. But what's an eremophile? Some new type of foreign car?

FEARLESS FULLER: No. An eremophile is a person who loves solitude.

MISS WATSON: You mean like, *I vant to be alone.*

FEARLESS FULLER: Exactly. Only in this case, they wouldn't let this eremophile, a packaging engineer, alone.

MISS WATSON: Who're they?

FEARLESS FULLER: The people in his firm. Seems they couldn't get his newly-designed foil labels to adhere properly to the boxes, bags, cans, and bottles on their packaging line.

MISS WATSON: The situation sounds positively desperate!

FEARLESS FULLER: It was. That is, until I reminded them that Fuller makes a specific foil glue for each type of container.

MISS WATSON: You mean what's good for bottles may not be good for cans?

FEARLESS FULLER: Correct, Miss W. It don't mean a thing if it ain't got that cling. Fortunately, I was able to recommend some perfect Fuller adhesive solutions to his problems. Now everything's fine.

MISS WATSON: Is he alone again now?

FEARLESS FULLER: Not quite. His relatives heard how successful he was and all rushed to visit him.

MISS WATSON: Oh Fearless, you're really kooky!

FEARLESS FULLER: Perhaps, Miss Watson. But you'll have to admit there are very few adhesive problems a Fuller man can't solve.

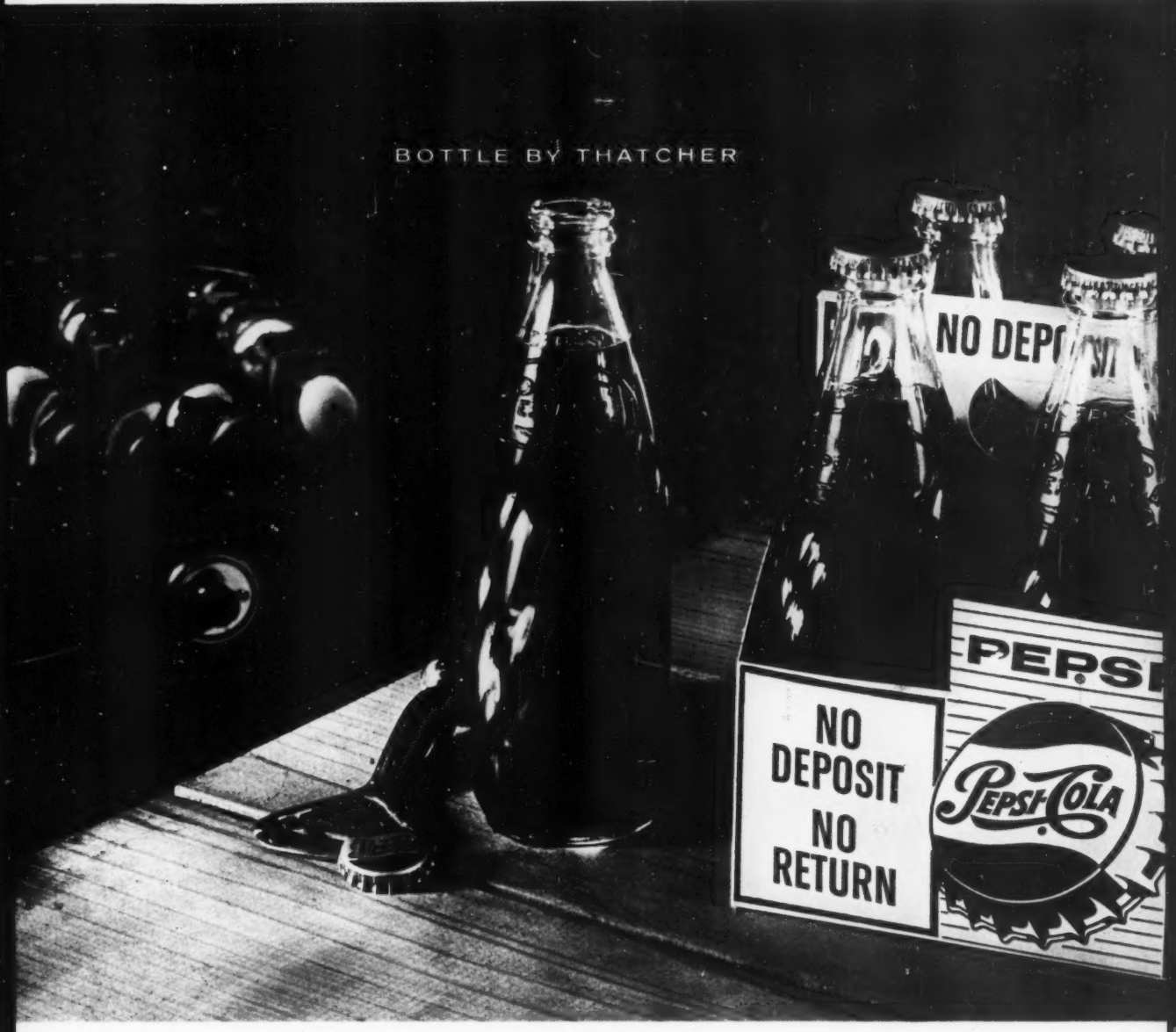
Your Fuller man is ready with the correct solutions on any adhesive problems for you, too. Contact your nearby plant.

H. B. Fuller Co.

INDUSTRIAL ADHESIVES

St. Paul, Minnesota

St. Paul, Minn. • Atlanta, Ga. • Buffalo, N.Y. • Chicago, Ill. • Cincinnati, Ohio
Dallas, Tex. • Kansas City, Mo. • Linden, N. J. • Los Angeles, Calif. • Memphis, Tenn. • Portland, Ore. • So. San Francisco, Calif. • Tampa, Fla.
Also Winnipeg, Can. • Fuller Adhesives International, Nassau, Bahamas



A good package is a great idea

Welcome to the one-way soft drink bottle! Whether you are a bottler or a retailer, you will find that the no-deposit glass container helps you open up a huge, extra-volume market: the vital *convenience* market.

Thatcher is proud of its part in developing the one-way. And we are ready to help you design a no-return bottle especially for your product...a pace-setting package with display value and consumer appeal. For one-trip or returnable bottles, call on Thatcher. Now.

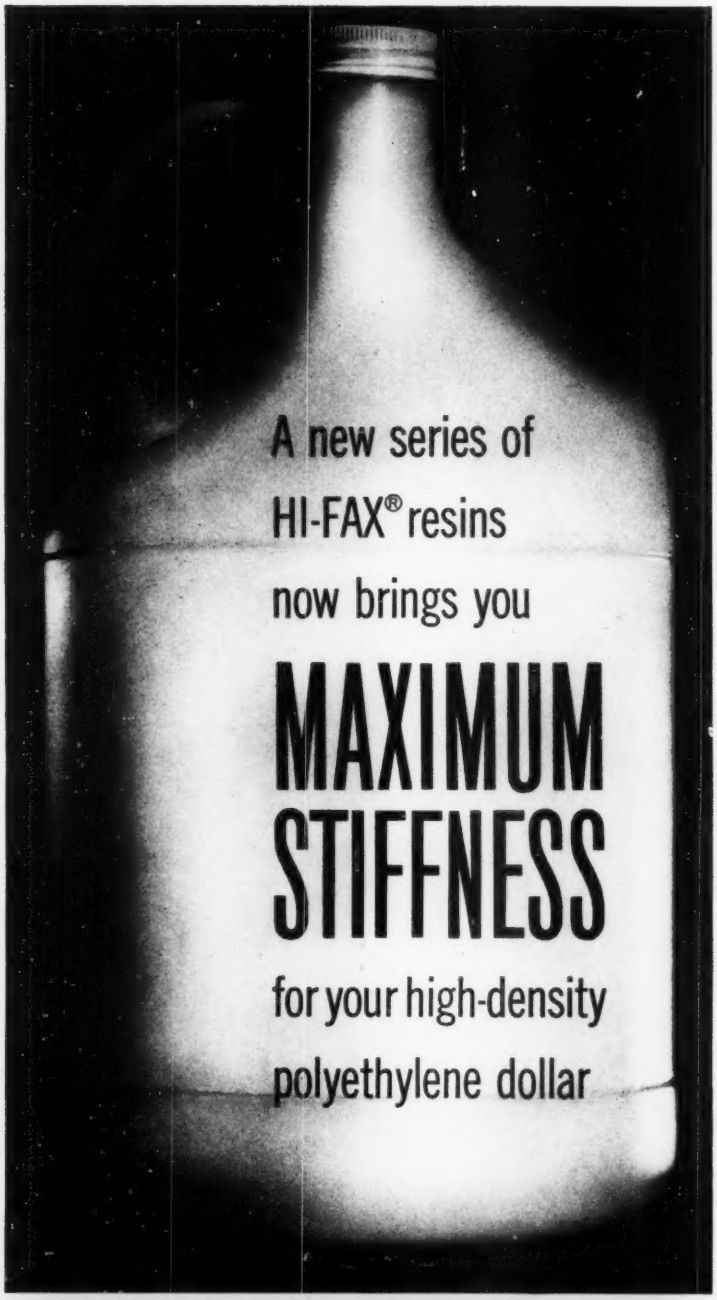
SHARE in Thatcher's Cooperative Promotion Plan for no-return bottles.

Thatcher

THATCHER GLASS MANUFACTURING COMPANY

375 Park Avenue New York 17, New York

CELON DIVISION, Muscatine, Iowa PLASTIC CONTAINERS, Nashua, N. H. MCKEE DIVISION, Jeannette, Penna.



NEW 0.962 HI-FAX RESINS

Series	Melt Index
Hi-fax 2600 E	0.2
Hi-fax 2400 E	0.9
Hi-fax 2300 E	1.5

Hi-fax® is the Hercules Powder Company registered trade mark for high-density polyethylene.

Another first for Hi-fax: 0.962-density resins in three different melt indexes. Produced by the exclusive Hercules process with Ziegler catalysts, this new economy form of Hi-fax is the first material of its type commercially available in America. Check these outstanding features of this important addition to the Hi-fax family:

Maximum stiffness
Superior surface gloss
Sharper light transmission
Increased resistance to permeation
Low cost

Add to all this the established processing advantages exclusive with Hi-fax, and the door is opened to a whole new vista of profitable markets.

Liquid bleach packaging appears to be one of the largest potential markets for these new Hi-fax resins. With its high degree of stiffness and excellent resistance to permeation, 0.962-density Hi-fax is one of the few materials capable of handling this hard-to-package product. In toys, sporting goods, durable housewares, and containers for motor oil, waxes, and a variety of household and industrial chemicals, blow molders are already making use of its improved surface finish, translucency, and merchandising appeal.

The scope of this versatile new resin reaches beyond blow-molding markets to such fields as extruded monofilaments, rigid sheets for vacuum-forming, and injection molding . . . wherever its outstanding stiffness, impermeability, and attractive surface finish provide the product advantages you require.

Extensively tested both in the laboratory and the market place prior to its introduction, 0.962-density Hi-fax is available now in whatever quantities you require . . . from a single bag to a 100,000 lb. Dry-Flo car. Attractively priced, it brings you that extra plus in properties and processability that made Hi-fax the pioneer . . . and still the leader of high-density polyethylenes.

Get thoroughly acquainted with 0.962-density Hi-fax resins. Write for all the facts.

HERCULES POWDER COMPANY

Hercules Tower, 910 Market Street, Wilmington 99, Delaware

KVP IMPACT!® OVERWRAPS

MAKE THEM WANT TO BAKE

Arouse appetites...stimulate impulse purchases with colorful, flavor-appealing pictures...the kind of pictures you get on KVP IMPACT!

KVP IMPACT! overwraps have set a selling standard for many important types of food products, including those in the toughly competitive prepared mix field. Where mouth-watering appetite appeal is a *must*, KVP IMPACT! features the functional characteristics necessary for superior print quality: surface levelness, ink receptivity, whiteness, opacity and sheen. KVP IMPACT! assures easy running performance during machine packaging.

Illustrated below are customers' own designs reproduced on KVP IMPACT! Your designs can be colorfully reproduced, too. If you prefer, you can use the creative talents of our own award-winning art staff to produce handsome buy-appeal designs for your product.

This medium-priced, luxury overwrap may be the answer to your present packaging project. Why don't you investigate? For additional information and samples, simply write to Dept. CM-1.

Whatever your packaging needs may be—cartons, overwraps, or innerwraps—we welcome the opportunity to serve you.

...the paper people

KVP SUTHERLAND PAPER COMPANY.....Kalamazoo, Michigan

Print-Pak bags another good idea

Industry knows a good idea when it sees one. And many of industries' good product ideas are being bagged in Nibroc Print-Pak. ■ Nibroc Print-Pak is ideal for industrial use . . . is economical . . . strong . . . adapts to automatic handling . . . fills easily and closes securely. ■ Nibroc Print-Pak prints clean, colors are brighter — printers like it — because it is easy to handle and prints so well. Write today for samples and complete information to Dept. MP-7. Bring your product and customer together with Nibroc Print-Pak.

Another Quality Product of

BROWN COMPANY

General Sales Offices: 150 Causeway Street, Boston 14, Mass. • Mills: Berlin and Gorham, New Hampshire

Nibroc® Print-Pak offers an attractive, practical packaging method for the Geigy Chemical Corporation of Ardsley, New York. Each of the bright, heat-sealed, plastic-lined Kard-O-Paks, produced by American Bag and Paper Corporation of Philadelphia, are color-coded for easy product selection.

how successful marketers

USE ALUMINUM FOIL LABELS

to add more sales appeal!

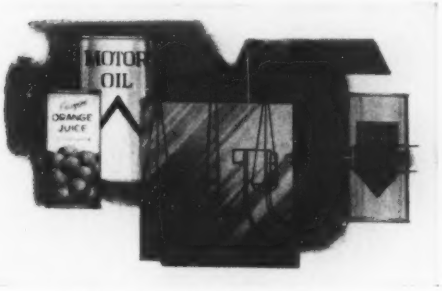
Labels that reflect quality — boost sales volume — are printed on Anaconda Aluminum foil. One look at these containers tells why. On busy counters and shelves, bright-reflecting foil labels will make your product stand out. Have you considered how your product sales can benefit by the added in-store salesmanship of aluminum foil labeling? Foil adds a neat touch of conviction, lets your image shine more clearly and more forcefully than ever before. Whatever your product, with the help of

Anaconda Aluminum — plain or laminated foil or rigid foil containers — you can better protect and brighten your product — and your sales outlook. Our "Aluminum Foil Design" booklet includes helpful information on label design. For your free copy ask your Anaconda Aluminum representative or write Dept. MP-7, P. O. Box 1654, Louisville 1, Ky.

ANACONDA ALUMINUM

The Perfect Container doesn't Just Happen!

ASK any pelican if nature didn't provide him with the perfect container for doing what it is supposed to do . . . best. Chances are he'll reply, "Brother, you said a mouthful!"



New economies for can users.

In packaging, Canco containers of light-weight plate do what they are supposed to do . . . best!

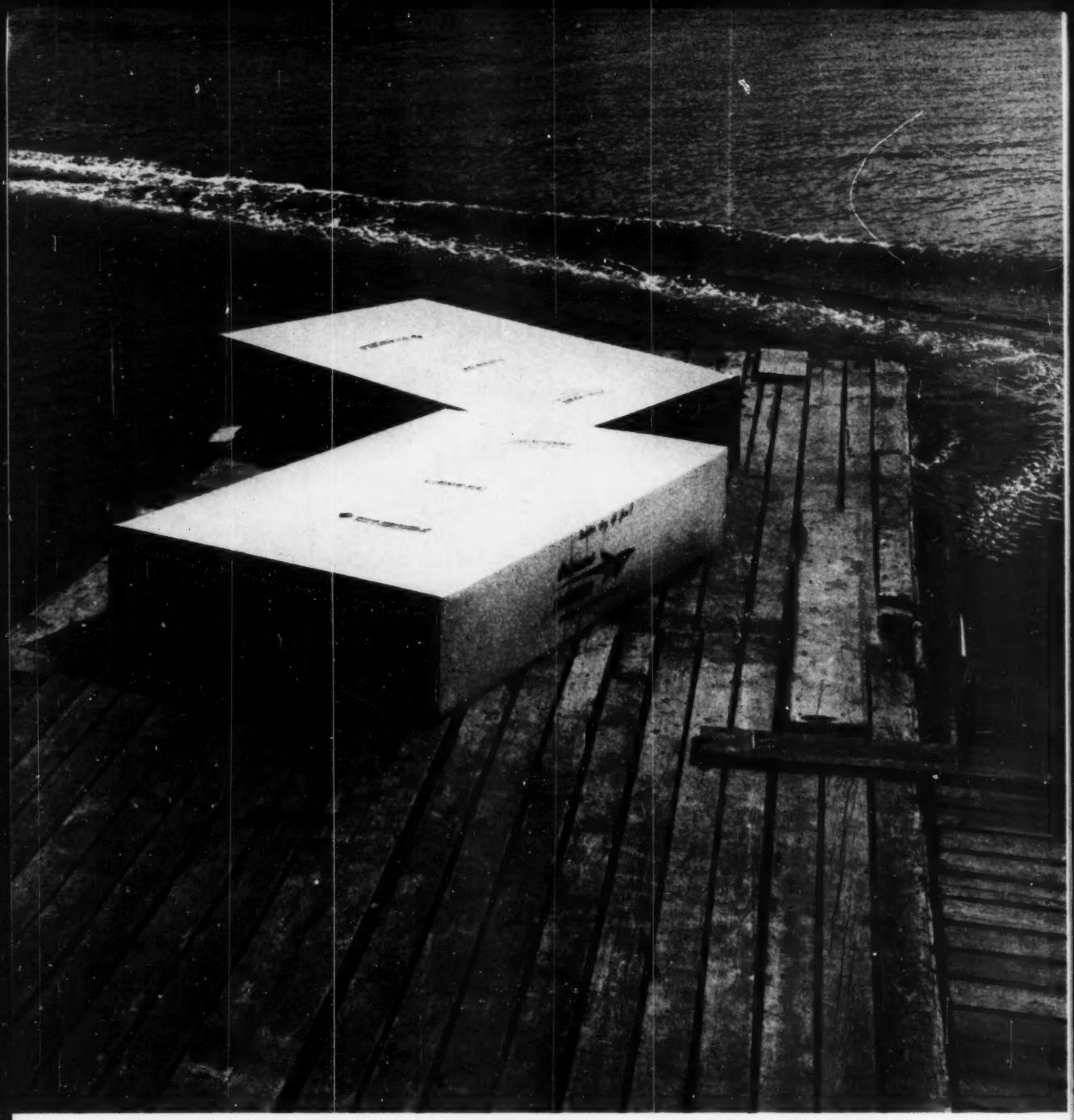
The Steel Industry's recent perfection of double reduced plate first made these new light-weight containers possible. Canco Engineers spent months in intensive research adapting the new plate to containers meeting all of Canco's rigid specifications.

Widely used by frozen juice concentrate packers, brewers and oil refiners, these new containers could cut cost for the brewers and refiners alone by $10 million a year.

Test packaging of many other items in light-weight containers is now underway in our laboratories. A cost-reducing light-weight can may be the perfect container for your product. Get the details soon from your nearest Canco Sales Office.

GREAT CONTAINER IDEAS COME FROM CANCO

CANCO DIVISION
AMERICAN CAN COMPANY



THE ARKANSAS TRAVELER'S GONE FISHIN' . . .

. . . and all that's left is its corrugated boathouse. Hoerner has been building corrugated containers to house Arkansas Traveler Boats for ten years. Hoerner packaging engineers designed special containers to keep boats shipshape in shipping and ready to go fishin'. This is just one of many Hoerner corrugated container success stories. We can make your product more profitable through improved packaging, too.

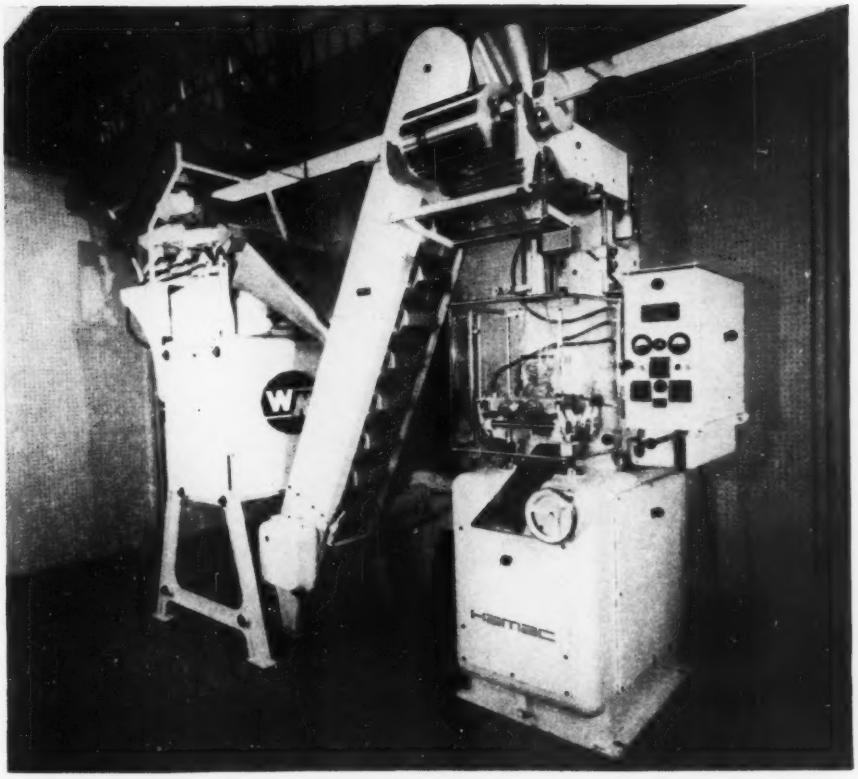
HOERNER BOXES, INC.

CORRUGATED PACKAGING SPECIALISTS FOR MID-AMERICA

GENERAL OFFICES: 600 Morgan Street, Keokuk, Iowa • MILL: Missoula, Montana • PLANTS: Fort Smith and Little Rock, Arkansas; Danville and Waukegan-Gurnee, Illinois; Des Moines, Keokuk and Ottumwa, Iowa; Minneapolis, Minnesota; Tupelo, Mississippi; Springfield, Missouri; Sand Springs, Oklahoma; Sioux Falls, South Dakota; Fort Worth and Mission, Texas • ASSOCIATE: Cajas y Empaques Impermeables, S.A., Mexico City D.F., Mexico

Hamac "Transwrap"

Now Available With WRIGHT WEIGHERS . . .



Sales, service, and spare parts of the Hamac-Hansella Transwrap® are now handled in the United States by Wright Machinery Company. This new arrangement also makes available here the Hamac-Hansella Transwrap with Wright weighers, including the noted Wright Hy-Tra-Lec.® The result: increased versatility and unsurpassed weighing accuracy in automatic pillow bag packaging for a wide range of products. The Hamac-Hansella Transwrap is also available from Wright with volumetric, auger, and pump feeds. Your inquiry is invited.

SALES, INSTALLATION, SERVICE, AND SPARE PARTS BY . .

WRIGHT MACHINERY COMPANY

DIVISION OF SPERRY RAND CORPORATION

DURHAM, NORTH CAROLINA

RIDGEFIELD, N. J. LAGRANGE, ILL. DALLAS, TEXAS SAN FRANCISCO, CALIF. DURHAM, N. C.

Schultz Type XP automatic one of a complete line of fully automatic rewinding machines for every requirement in small roll production

Schultz

MANUFACTURED AND SOLD EXCLUSIVELY BY

Schultz

engineering corp.

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Riegel

Creative Climate for Tomorrow's Packaging

Staff's new tissue carton: In the store it's an eye-appealing stand-out. In the home it's a beautiful, unmarked accessory . . . tastefully designed in silver gray and bronze to match any decor. Just punch out the perforated panel and the main copy disappears! Designed and produced by Riegel for Staff Supermarket Associates.

Whether you need this kind of creative thinking . . . or greater packaging economy . . . or the last word in flexible protection . . . Riegel can help you.

You will be interested in the new, broader range of Riegel materials and services shown on the following pages.

the new ideas come from

Riegel

RIEGEL PAPER CORPORATION, 260 MADISON AVE., NEW YORK 16, N. Y.
Specialist in the packaging of foods, drugs, and soft goods
Flexible packaging . . . carton board . . . folding cartons . . . carton liners

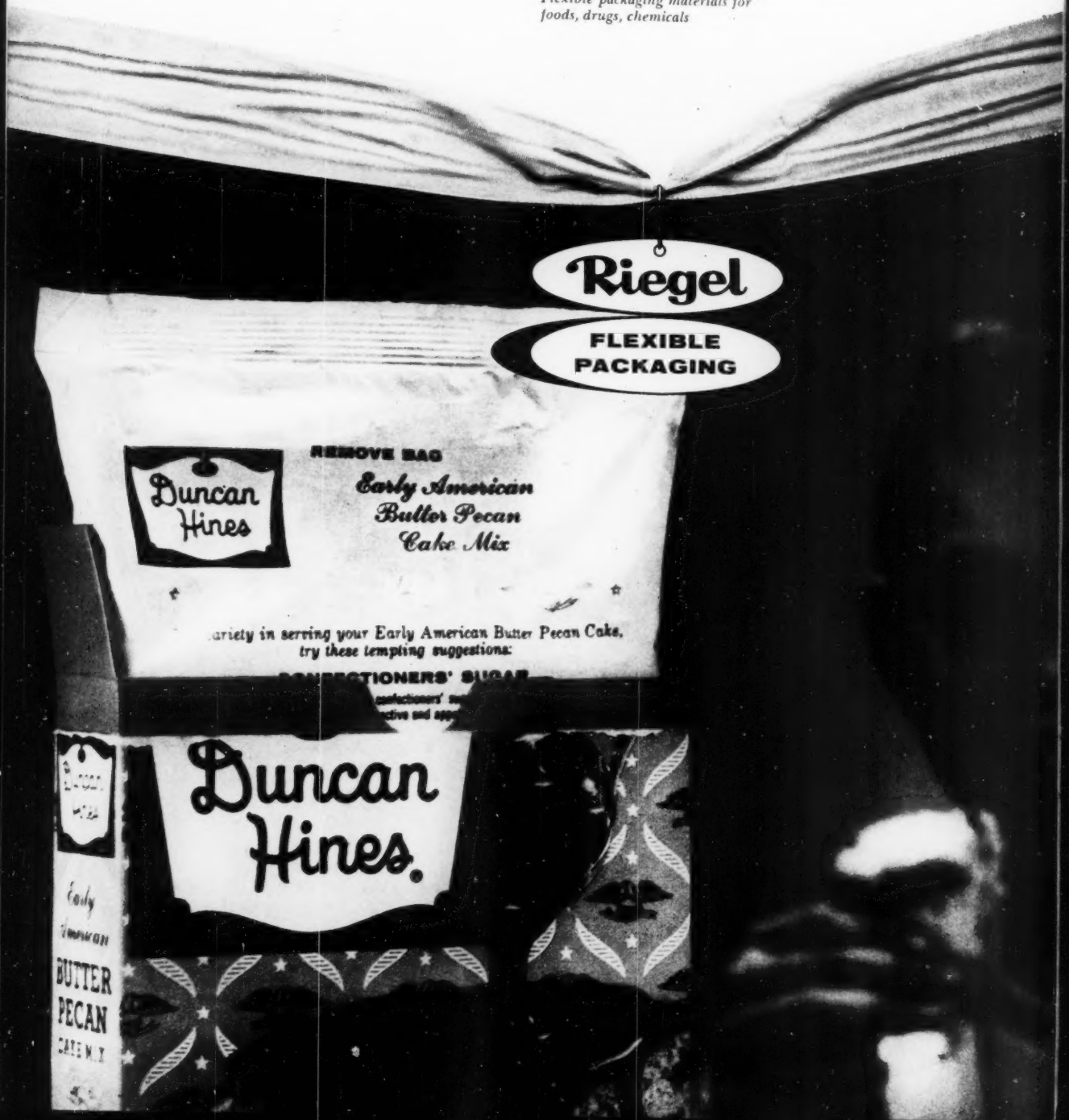
Duncan Hines... good old fashioned flavors protected in new-fashioned Riegel package

To protect the goodness of *Early American* Cake Mixes, Duncan Hines relies on a special lamination of glassine and polyethylene produced and printed by Riegel.

This package keeps delicate flavors, fine powders, shortenings and critical moisture content firmly protected.

We've a flair for thinking of every product as something special... and developing for it the one best packaging answer, be it pouch paper, glassine, foil, plastic, film or combination... printed, coated or plain. Write for more information today... for the new ideas come from Riegel.

Flexible Packaging Division
Riegel Paper Corp., 260 Madison Ave., NYC 16
Flexible packaging materials for foods, drugs, chemicals



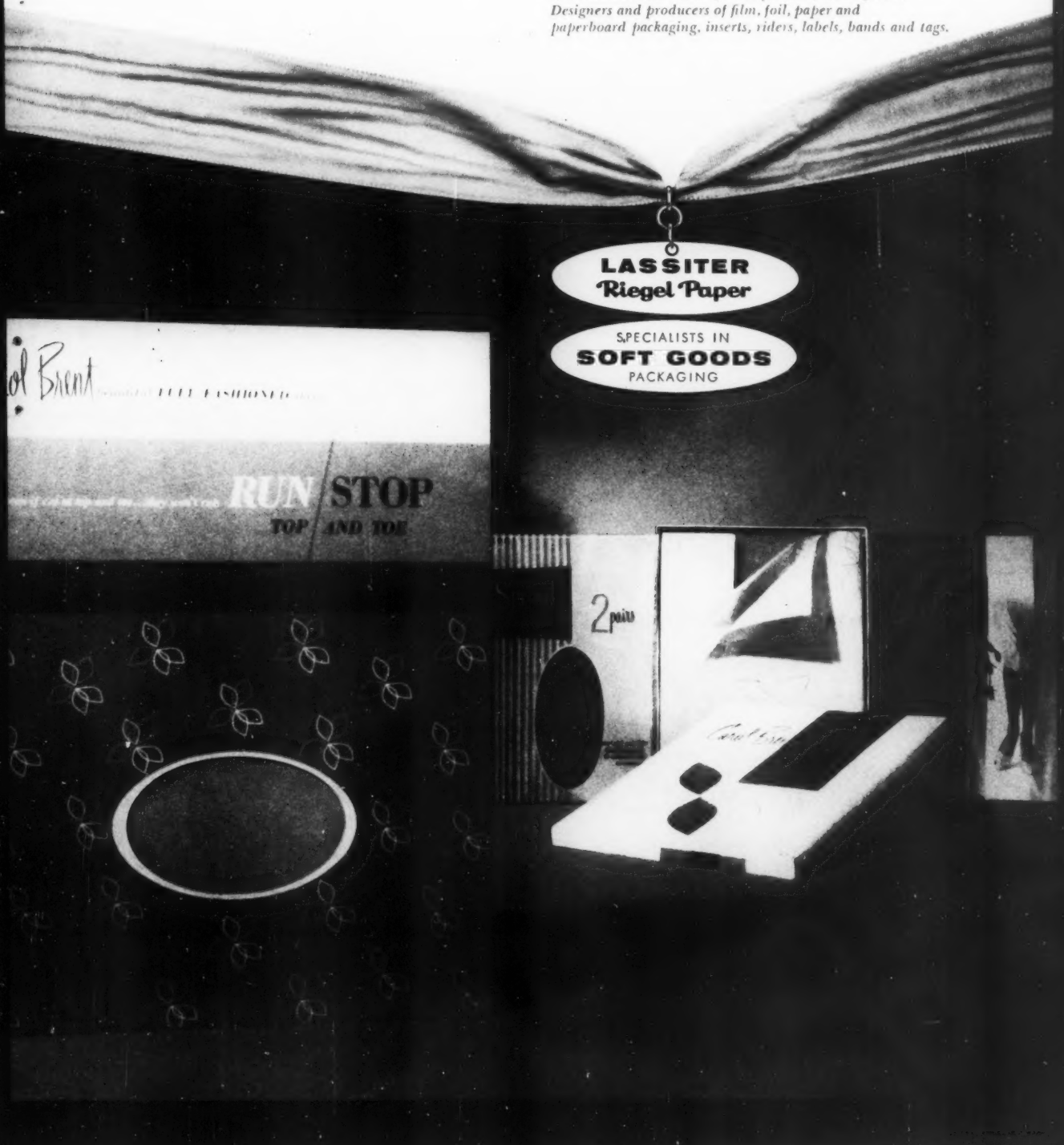
4 packaging styles...4 top sellers produced for Montgomery Ward by Lassiter

Adroit package design by Montgomery Ward merchandises all price lines of Carol Brent hosiery. Paperboard envelopes, cellophane envelopes with printed inserts, box wraps, printed tissues and polyethylene envelopes . . . . are all by Lassiter.

Experienced versatility...that's why Montgomery Ward's designers looked to Lassiter for integrated packaging for their hosiery lines. As the leading specialist in soft goods packaging, we understand both sales and production problems. We know how to create packages that will catch the shopper's eye, promote sales and fit your production set-up.

This kind of *practical* creative packaging can help you. Write or phone Lassiter today.

Lassiter Sales
RIEGEL PAPER CORP., 350 Fifth Ave., NYC 1, N. Y.
Designers and producers of film, foil, paper and paperboard packaging, inserts, riders, labels, bands and tags.



Menthol-Fresh Salem Cigarettes ...now in brighter, cleaner Riegel Foldcote.™

Crisp, clean-looking Salem cartons use Riegel Cigarette Carton Stock . . . gravure printed in three colors by Archer Aluminum Division of R. J. Reynolds Tobacco Company.

For noticeably stronger, brighter cartons . . . and extra eye-appeal . . . try Riegel's outstanding new full-bleached carton stock . . ."Foldcote". Super-white for color brilliance, super-smooth for high fidelity reproduction, super-strong for rugged, rigid packages that keep that clean look.

Your future, too, can be brighter with "Foldcote". Ask for samples and information. Ask too, about other Carolina solid bleached boards. Export inquiries invited. Call Riegel today . . . for the new ideas come from Riegel.

Pulp and Paperboard Division
RIEGEL PAPER CORP., 260 Madison Ave., NYC 16
"Foldcote" machine-coated bleached boards
"Albacel" and "Astracel" pulps

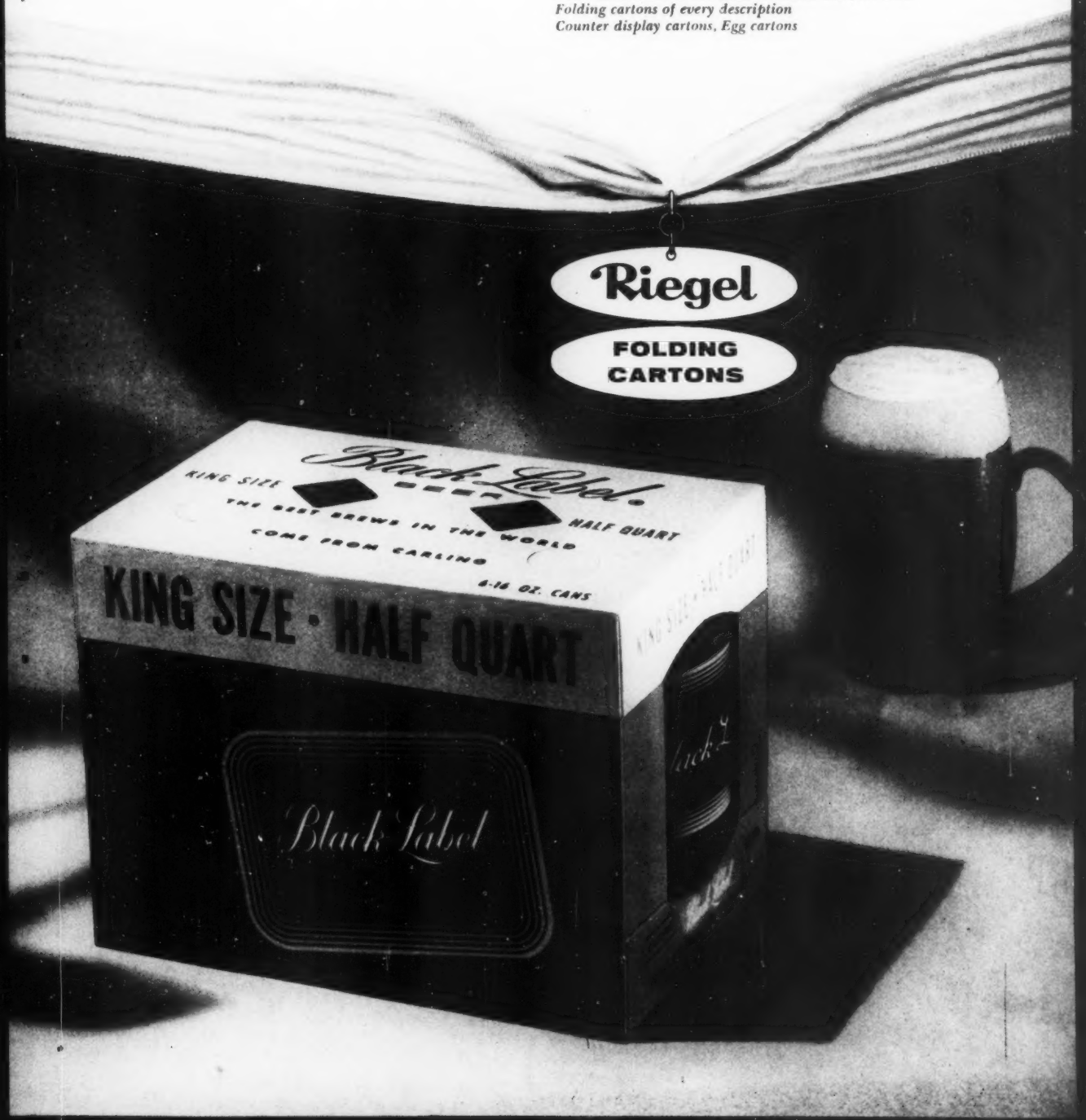
Carling Beer... more good things now come in Riegel cartons

16-oz. cans of Carling Black Label beer now go to market in distinctive red and black six-pack cartons produced by Riegel.

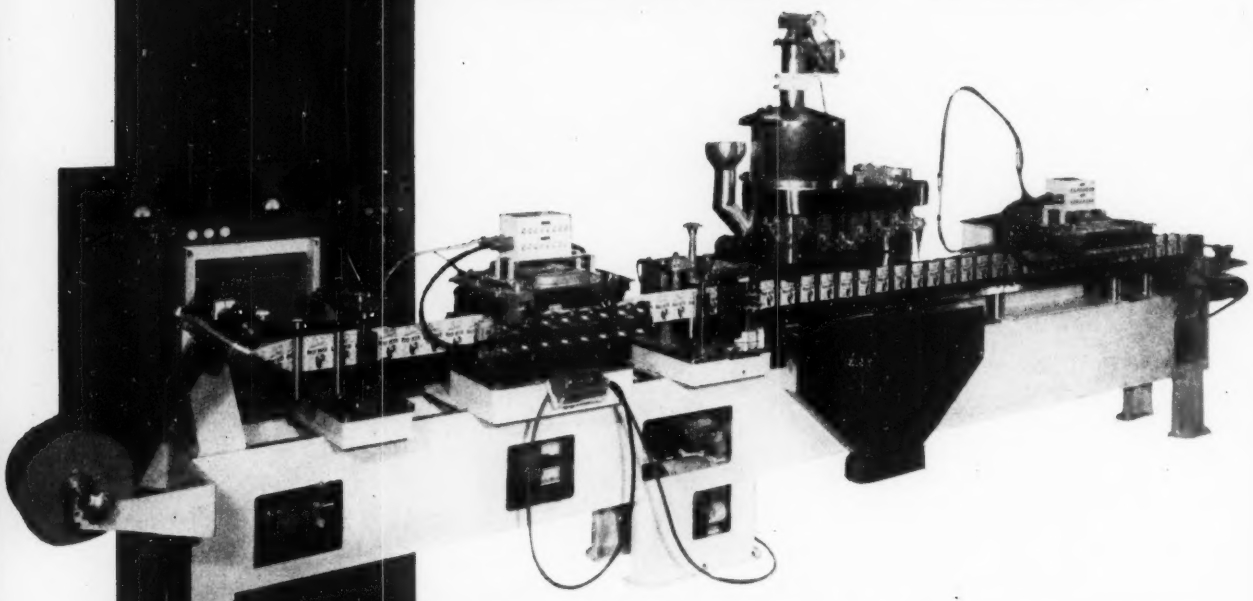
To move a top-selling beer to market, the key word in cartons is *reliability*... reliability in printing and construction... reliability in meeting high-volume delivery dates. Riegel's modern equipment, plus personalized attention, assures all users that their demands will be met.

Riegel Folding Carton Division offers award-winning design services plus full choice of printing processes, coatings and finishes from strategically located plants. You'll find a talk beneficial... for the new ideas come from Riegel.

Folding Carton Division
RIEGEL PAPER CORP., 260 Madision Ave., NYC 16
Folding cartons of every description
Counter display cartons, Egg cartons



e BARTELT Tradition



ERIOR FLEXIBLE PACKAGING AT VERY HIGH RATES!

BARTELT CONTINUOUS MOTION PACKAGER

Speeds to 500 Packages Per Minute

Through continuous motion operation, Bartelt's proven principle of horizontal work flow now has been adapted for the production of up to 500 flexible pouch packages per minute.

This adaption is the new Bartelt Continuous Motion Packager. The quality package production expected of Bartelt equipment has been maintained with the bonus of VERY HIGH SPEED.

Keys to this unprecedented speed are revolutionary filling mechanisms and "traveling-beam" heat sealers. The heat sealers for both vertical and horizontal seams, composed of separate heating elements, follow the pouches, sealing 8 at a time with up to ½ second dwell time for lasting strength.

The machine can be adapted to the packaging of liquids, solids, and powders. Filling mechanisms are custom designed to best meet the requirements of the product for maximum efficiency and speed.

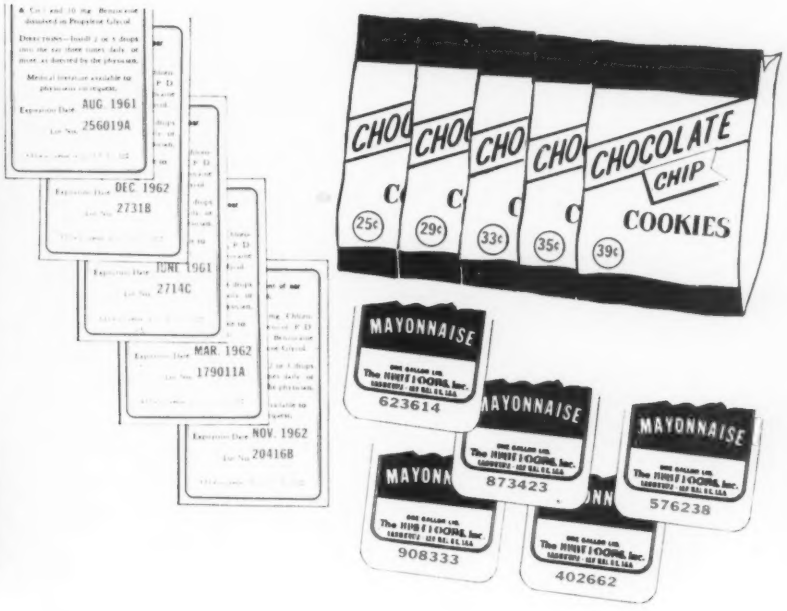
The use of single purpose mechanisms for forming, sealing, filling and closing makes for ease of maintenance and high operating efficiency.

Built in the traditionally rugged Bartelt style, this machine is fast, accurate, makes extra-strong seals, and will give you dependable service for years to come.

"Machinery for Creative Packaging"

BARTELT ENGINEERING CO., INC.
Subsidiary of Riegel Paper Corporation
1900 Harrison Ave. • Rockford, Illinois
New York • Chicago • San Francisco

Prevent packaging waste
with as-needed Tickometer imprinting—



With any change of price or contents, preprinted packages become scrap. / Prevent waste, reduce inventories, save printing costs, with a Tickometer. / It imprints codes, weight, price, color, etc., on labels, tags, wrappers, light cartons, for current production – at 400 to 1,000 pieces a minute. / Prints from type, electros, rubber mats. Feeds and stacks automatically. Handles most weights and finishes of paper, and light card stock. Easy to use. / It also counts, so accurately banks use it to count currency. With attachments, it signs or endorses checks. / Bought or rented. Pitney-Bowes service from 320 points. / Ask the nearest PB office for a demonstration. Or send coupon.

Pitney-Bowes

TICKOMETER

Imprinting & Counting Machine

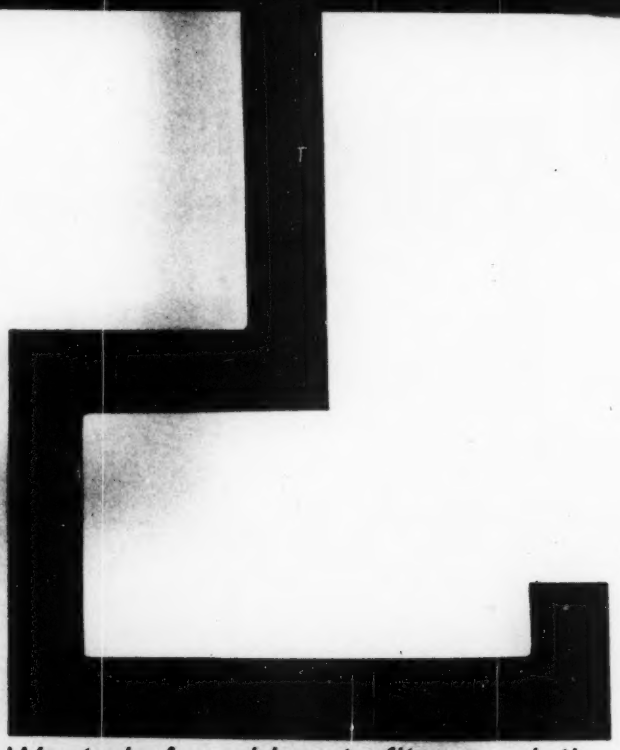
Made by the originator of the postage meter . . .
149 offices in U. S. and Canada.

PITNEY-BOWES, INC.
4843 Walnut Street
Stamford, Conn.

Send Tickometer booklet and case studies.

*Name*_____

*Address*_____



Wanted: A problem to fit our solution

Somewhere, there's an engineer with an industrial control problem. We don't know what it is, but we'd like to meet him. We don't even know what industry he works for.

We know it isn't the tobacco industry.

You see, we've been in the tobacco machinery business for over fifty years. As a matter of fact, American Machine & Foundry Company's Standard Cigarette Machine revolutionized the world's smoking habits in 1907, and AMF has kept its lead in this field ever since.

The reason? AMF research and development teams, involving over 1600 scientists working all over the world, have consistently come up with machinery to solve the tobacco industry's problems more efficiently and more profitably. Engineers in the tobacco industry know all this. But, our R&D people tell us that many of the machines we are selling to the tobacco industry have potential application to other industries.

What other industries? They can't tell us – yet.

They can tell us what general areas are most likely to produce the kind of problems for which they have the solutions. A maker of a small packaged product, like soap or a pharmaceutical, where accurate weight control is the difference between profit and loss; a maker of a packed and cartoned product (playing cards? candy?) may be interested in a packing machine that can be adapted to his product. A processor of a large, loose raw material may be interested in how AMF developed tobacco leaf handling and processing systems —and want to apply the same know-how to wasteful, uneconomic hand operations. The use of electronics as a method of control of high-speed inspection, correction and packaging may interest another industry.

The engineer we're looking for is pondering his problem. We wish he'd let us ponder it with him.

TOBACCO MACHINERY GROUP
AMERICAN MACHINE & FOUNDRY COMPANY
EXECUTIVE OFFICES, AMF Building, 261 Madison Avenue, New York 16, New York

Bologna · Frankfurt · Geneva · London · Mexico City · Paris
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LARGE SIZE...
SMALL SIZE...
ANY SIZE...

Cleveland Containers are functionally designed to protect and "sell" your product . . . *and at low unit cost!*

Sturdily constructed of quality paperboard or transparent plastic, Cleveland Containers are made to specific product needs with: —

CLOSURES in many styles and diameters in metal, plastic and paper.

LINERS of parchment, glassine, aluminum foil or plastic film.

LABELS in a colorful selection of styles for brilliant display.

The services of our Packaging Engineers are available without charge.

CLEVELAND CONTAINERS INCREASE SALES

Illustrated above — These containers, ideally designed in 8- and 16-oz. sizes, for a powdered soap, have these built-in features: **1**—Sturdy fibreboard construction; **2**—Bright, waterproof aluminum foil label; **3**—Attractive, smooth-working plastic closure; **4**—Non-rusting, metal bottom; **5**—Perfectly sized for effective display, and handy use in the home and shop.

The new "DIAL-O-MATIC" closure! Made of plastic, the wheel smoothly glides and locks in 3 positions: close . . . pour . . . sift! Recessed rim permits lock-sure stacking. Available in several styles, diameters, and color combinations.

Write for our latest Packaging Brochure

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COMPANY

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ALL-FIBRE CANS · COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

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Abrasive Division at Cleveland

Easy new way to specify the

Code numbers now show you "yield per pound"

Now . . . a new code system will make it easier than ever before for you to specify the exact Du Pont cellophane you need to meet your particular requirements.

Here's how it works: In place of the gauge designation of "300" . . . "450". . . and "600", you can now specify the cellophane type by its square-inch yield per pound. For example, a film such as 300 MSD-60 which now has a yield of 22,000 square inches per pound will be designated 220 MSD-60 (thus using the first three digits of the yield as the gauge designator instead of the less meaningful "300").

Use this list to find new code designations for over

FORMER CODE and yield	NEW CODE and yield
"K"* CELLOPHANE FILMS (polymer-coated, moistureproof, heat-sealing)	
"K" 300-201 21,000 sq. in./lb.	"K" 210-201 21,000 sq. in./lb.
	"K" 250-201† 25,000 sq. in./lb.
"K" 300-202 19,500 sq. in./lb.	"K" 195-202 19,500 sq. in./lb.
"K" 450-202 14,000 sq. in./lb.	"K" 140-202 14,000 sq. in./lb.
	"K" 116-202† 11,600 sq. in./lb.
"K" 300-203 18,000 sq. in./lb.	"K" 180-203 18,000 sq. in./lb.
	"K" 195-203† 19,500 sq. in./lb.
"K" 450-203 14,000 sq. in./lb.	"K" 140-203 14,000 sq. in./lb.
"K" 600 10,300 sq. in./lb.	"K" 103-203 10,300 sq. in./lb.
	"K" 210-FC† 21,000 sq. in./lb.
MOISTUREPROOF, NON-HEAT-SEALING FILMS	
300 MD-31, 32 21,000 sq. in./lb.	220 MD-31, 32† 22,000 sq. in./lb.
300 MD-35, 36 21,000 sq. in./lb.	210 MD-35, 36 21,000 sq. in./lb.
MOISTUREPROOF, HEAT-SEALING FILMS	
300 MSD-51 21,000 sq. in./lb.	210 MSD-51 21,000 sq. in./lb.
300 MSD-52, 53, 54 19,500 sq. in./lb.	195 MSD-52, 53, 54 19,500 sq. in./lb.
450 MSD-53, 54 14,000 sq. in./lb.	140 MSD-53, 54 14,000 sq. in./lb.

†New High Yield

right Du Pont cellophane:

This new code system replaces one that has outlived its usefulness. Recent announcements by Du Pont of new higher-yield cellophanes which bring important cost savings to packagers made the change imperative. The chart below shows the new and former codes for many of the most widely used Du Pont cellophanes. You can see at a glance how the new code system will give you more useful information faster.

FOR YOUR COPY of a new Price List which shows the new codes for most types of Du Pont cellophane, contact your Du Pont representative or write Du Pont Co., Film Department, Wilmington 98, Delaware.

DU PONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT cellophane

30 of the most widely used Du Pont cellophanes

FORMER CODE and yield	NEW CODE and yield
300 MSD-56, 57 18,700 sq. in./lb.	187 MSD-56, 57 18,700 sq. in./lb.
450 MSD-56, 57 13,600 sq. in./lb.	136 MSD-56, 57 13,600 sq. in./lb.
300 MSD-60 21,000 sq. in./lb.	220 MSD-60† 22,000 sq. in./lb.
300 MSAD-86, 87 19,500 sq. in./lb.	195 MSAD-86, 87 19,500 sq. in./lb.
450 MSAD-86, 87 14,000 sq. in./lb.	140 MSAD-86, 87 14,000 sq. in./lb.
300 MSAD-80 19,500 sq. in./lb.	195 MSAD-80 19,500 sq. in./lb.
450 MSAD-80 14,000 sq. in./lb.	140 MSAD-80 14,000 sq. in./lb.
300 MSAD-90 18,250 sq. in./lb.	182 MSAD-90 18,250 sq. in./lb.

FORMER CODE and yield	NEW CODE and yield
INTERMEDIATE MOISTUREPROOF FILMS	
300 LSD 19,500 sq. in./lb.	195 LSD 19,500 sq. in./lb.
300 LSAD 19,500 sq. in./lb.	195 LSAD 19,500 sq. in./lb.
450 LSAD 14,000 sq. in./lb.	140 LSAD 14,000 sq. in./lb.
PLAIN OR NON-MOISTUREPROOF FILMS	
300 PD 21,500 sq. in./lb.	215 PD 21,500 sq. in./lb.
450 PD 15,000 sq. in./lb.	150 PD 15,000 sq. in./lb.
600 PD 12,400 sq. in./lb.	124 PD 12,400 sq. in./lb.
300 PSD 19,500 sq. in./lb.	195 PSD 19,500 sq. in./lb.

*Du Pont registered trademark

Look
what's new
in shampoo
packaging
A "MAKES YOU WANT TO BUY" PACKAGE. This graceful shampoo package is a beauty on the shelf. But producing it took some doing. The bottle could have no less than 5% headspace . . . with the further requirement that the fill point must appear precisely at the shoulder. Where other attempts failed, our engineers solved the problem without sacrificing the design, and produced this attractive bottle and closure.
Armstrong PACKAGING
WATCH ARMSTRONG CIRCLE THEATRE EVERY OTHER WEDNESDAY EVENING ON CBS-TV

Background for Packaging

Notes, quotes and comments. An editorial feature

Ultralight tinplate is moving fast. By the end of 1961, nearly one-third of its total tinplate requirements could be filled by the new and more economical "double-reduced" plate, American Can Co. says. Although double-reduced plate is more difficult to handle in the can-manufacturing process, the technology has been worked out to provide high-quality cans with ultralight plate just as consistently as with conventional tinplate, according to Canco. Motor-oil packers seem likely to settle on 60-lb. body with 65-lb. ends. Interesting: Double-reduced tinplate looks much the same as aluminum.

Will consumer confidence in aluminum help to put over the aluminum can, just as it helped put aluminum foil in a strong position in the wrap, label and liner fields? A survey made for a Chicago meat packer is reported to have shown that consumers are favorably impressed with the concept of a pure-aluminum can even before seeing one; and that after seeing and using both aluminum and tinplate cans, 66% prefer aluminum. A similar test for orange-juice concentrate indicated a 60% preference for aluminum.

Another compliance deadline is fast approaching. After August 1 no "hazardous substance"—which covers several hundreds of volatile, flammable, caustic or poisonous substances—can be shipped in interstate commerce unless it complies fully with the new Hazardous Substances Labeling Bill passed by the last Congress, requiring explicit warnings on the labels. There is a possibility of a six-month time extension, but this is unlikely since this is a simple matter of package copy. Jurisdiction is under the Food & Drug Administration and a booklet, "Guide to Household Poisons Law," can be obtained free of charge by writing to the F&DA, Washington 25.

'Deceptive packaging' pressure builds up. Not only do the Government enforcement agencies have a new legal weapon which they mean to use *(see MP, May, '61, p. 35)*, but a full-scale Senate investigation, with public hearings, will soon be announced, according to Washington reports. Congressmen are hearing from consumers on such complaints as hiding of weight information, pushing of "large economy" sizes which actually cost more per ounce of product and the proliferation of odd sizes which make a brand-for-brand comparison difficult.

Some ramifications of the deceptive-packaging drive can now be seen. Among those most concerned are the aerosol packagers; the aerosol has frequently been mentioned as a package that delivers far less product than its bulk would indicate. Fillers are devoting much attention to new propellants and new systems which may minimize this disparity. In other fields, one certain safeguard against any "deception" charge is the transparent package; makers of plastic containers, films and bags expect to benefit.

Aerosol toothpaste, which has had only indifferent success so far, is due for a new look in conjunction with the new "free-piston" aerosol which permits more complete and consistent discharge of product. Working with this container, several dentifrice companies are known to be experimenting with a new toothpaste formulation which comes out as a ribbon and foams on the brush. Propellants and valves are being adapted to this requirement.

Increasing competition from plastics vs. both metal and glass is being noted by Wall Street houses which watch the container industries. Calvin Bullock sees "the container race" as a three-horse proposition, with plastics coming up fast on the outside, while metal and [*Continued on page 46*]

icy treat
icy treat

GARDEN FRESH
GARDEN FRESH
tea
Marshmallows
Fresh Crisp
POTATO CHIPS
ROLLS
icy treat

Each food fresh as all outdoors! Flavorful, too...

thanks to various types of AVISCO® CELLOPHANE

Imagine! This wide variety of foods packaged in Avisco cellophane. And no wonder. Cellophane is the *only* packaging film that gives proper protection to *all* these products and *hundreds more*. For cellophane is not merely a single film, but a *family of films*.

There are many different types of Avisco cellophane—each one tailored to meet a *specific* product requirement. For example, fresh meats require an extra-tough film that preserves bloom. Tea demands retention of flavor and aroma. Corn needs a film that breathes. Potato chips need crispness retention. And flavored ices require a special extrusion coated cellophane. There are types of Avisco cellophane for *all* these purposes and *many others*.

What's more, only cellophane offers the combination of low initial cost, pure transparency and sparkle, superb printability and unmatched performance on packaging machines. The result? *Total packaging economy.*

Get all these benefits in packaging *your* product. Contact us for an appointment with our representative in your area or a selected cellophane converter specializing in your field.

Specify "AVISCO" when you order printed and/or fabricated cellophane from converters.

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Background for Packaging

Continued from page 43

glass fight it out. Bullock's *Perspective* points out that the high-density polyethylene container in only two years has reached the same volume that the low-density squeeze bottle achieved in 12 years. Rising costs of metal and glass, against lowering costs of plastics, are noted.

Signs of a healthy upturn in the paperboard industry, bellwether of packaging, can be observed. Paperboard orders for the first week in May, at 371,060 tons, were the highest in 18 months—up 11% over the previous week and 8% over a year ago. Production in May reached 93% of capacity. A new feeling of confidence and optimism is reported from leading paper companies, subject to improvement of their profit margins.

New words in the packaging lexicon: "Electrostatic" process is being investigated in two areas—as a means of depositing thin but efficient coatings on paper and paperboard and as a simplified method of printing without conventional plates. "Ultrasonics" have arrived and may soon be very common as a means of integrally sealing foil and plastics without coatings, heat or adhesives *(see two articles in this issue, p. 100 and p. 129)*.

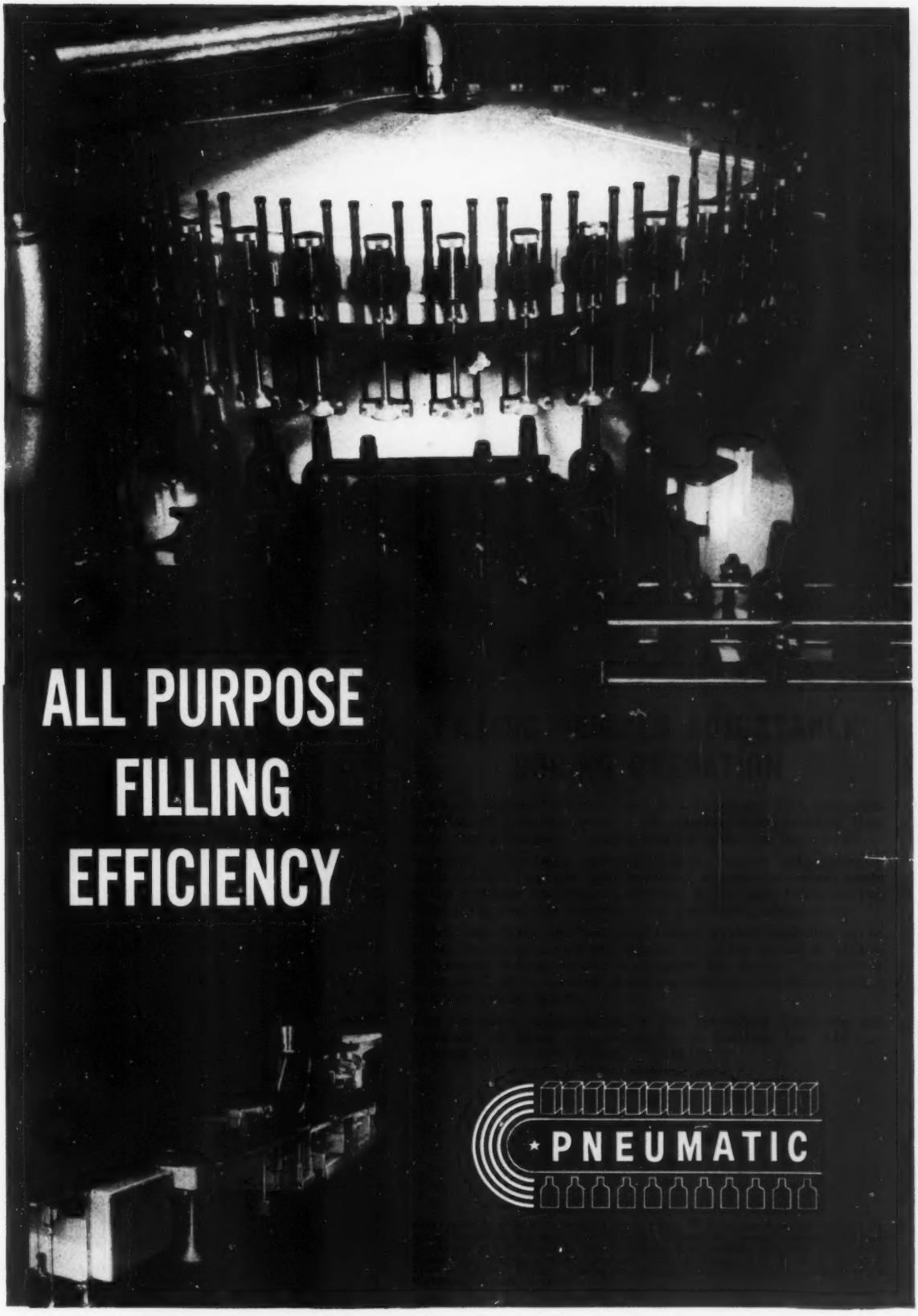
Look for big expansion of aluminum-foil containers in vending-machine sale of hot foods. Quick heating, ease of handling in the machine and consumer acceptance of foil for food service are cited. The Vendo Co. will use foil pans, developed by Kaiser, in what is said to be the nation's first coin-operated drive-in, in Kansas City, offering hot foods, as well as beverages and staple grocery items, at all hours.

A novel new material is being offered to frozen-food packagers, based on the current home trend toward cooking in foil. Aluminum foil is coated on one side with a shortening which in turn is impregnated with seasoning. Contents cooked, still sealed, in such a material will be basted and seasoned just as the food packer recommends for best results.

Freight containerization reaches a new stage with approval by the American Standards Assn. of the first standard for container dimensions. It establishes nominal lengths of 10, 20, 30 and 40 ft. for van containers—used interchangeably in truck, sea and rail transportation—with a cross-section of 8 ft. by 8 ft. This will help packagers design shipping cases to make maximum use of transporter space. Other standards are to follow.

Growth of the discount house must be watched by packagers, because it places on the package selling requirements far more stringent than those encountered in the usual well-lighted, orderly supermarket. Not only are discount chains growing huge in size, but department and variety stores—including Woolworth and Kresge—are going into the business, under their own or different names. Buying groups—similar to those operating in hardware and housewares—now act for discount stores and these may be a source of advice on packaging. By the end of 1961, it is predicted, 2,400 discount houses will be grossing $4 billion—a 41% increase in one year.

New products are the lifeblood of the plastics industry as well as the product industries which it serves in packaging. At recent stockholders meeting of Celanese Corp., *President Harold Blancke* disclosed that 35% of current sales volume comes from products the company did not have 10 years ago. Forward planning to produce such results, stockholders were told, requires meticulous scheduling for two years ahead as well as advance planning over a period of at least 10 years.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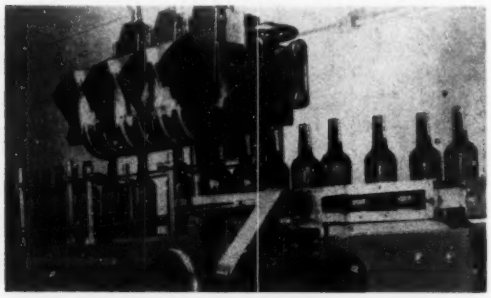
EQUIPMENT & MATERIALS

Carton-machine for packaging fish sticks

A carton-machine combination for packaging fish sticks, which is said to introduce new flexibility and economic advantages, has been introduced by Marathon. Employing a modified Lynch BK Morpac machine which automatically loads the frozen fish sticks onto a flat, wrapperless printed carton blank, wraps the carton around the rectangular pattern of sticks, and glues three sides, the unit discharges completely sealed packages at a reported rate of 40 per minute. The Lynch machine is said to be compact and low in cost, thus allowing installation of additional units to provide greater productive capacity. The unit is 6 ft. long, 2 ft. wide and 5 ft. high. The machine automatically loads the correct number of fish sticks from a continuous line on an infeed conveyor with a sensing device which counts the correct number of sticks, holds them and feeds them into the carton blank prior to the wrap-around operation. Considerable labor saving and some board saving are said to accrue because hand filling is not necessary and a smaller square-inch area is needed in a wrap-around carton. *Marathon, Div. American Can Co., Menasha, Wis.*

Automatic liquor-tax-stamp applicator

The John Burton Machine Corp. is offering a new machine for the application of government tax stamps to liquor bottles at production speeds. The machine is designed to apply thermoplastic heat-seal stamps that have been pre-coated. Use of the pre-coated stamps, the supplier says, has made possible a simplified machine which eliminates multiple transfer of stamps. Bottles enter the machine on conveyor and are spotted and re-spaced by a patented feed screw device. Three hoppers hold a total of 9,000 stamps and can be reloaded without stopping the machine. It is equipped with a heating element which heats the stamps during the application phase to provide one-operation application. Adhesion is said to be instantaneous and continuous compression of the stamp is not required. Fast change-over from pints to quarts is made possible by the removability of the stamp applicators. During change-over, one applicator is removed and another—with the different stamps—is substituted. The supplier notes that stamps with



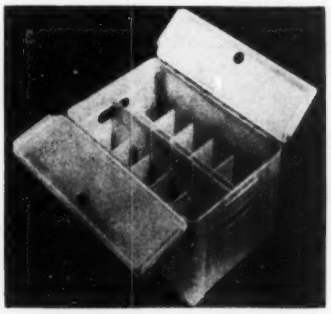
varying tolerances will not affect the performance of the machine. The machine is available either alone or in combination with the company's Cellubander for rated speeds of 60, 120 and 200 bottles per minute. *John Burton Machine Corp., Concord, Calif.*

Automatic textile-tape strapping machine

The Avistrapper, a new automatic textile-tape strapping machine, is being offered by the Industrial Packaging Div. of American Viscose. The machine is said to be the first completely automatic unit developed for the supplier's Avistrap—a rayon-fibre strapping. The unit, available in two models, automatically straps packages without machine adjustment for varying sizes of containers or combinations of containers. Model AVM-1, designed for smaller operations, straps packages in a range from 6 by 6 in. to a maximum of 20 by 20 in. Model AVM-2 straps packages between sizes of 15 by 15 in. and 36 by 36 i[n.] *American Viscose Corp., Industrial Packaging Div., 1617 Pennsylvania Blvd., Philadelphia 3.*

Molded polyethylene beverage cases

Union Carbide Plastics enters a new field—the production and sale of bottled-beverage cases injection molded from high-density polyethylene. The supplier reports that it is subcontracting production of the returnable plastic cases to established molders, for marketing through normal beverage - trade channels. The company reports that the plastic cases offer a weight saving of 50% in comparison with wooden shells, for substantial economies in transportation costs. Other advantages cited by the supplier include durability, ease of cleaning and resistance to cracking or warping under normal handling conditions. Three models of polyethylene beverage cases are available. They include a 24-bottle tray with molded-in carry handles (for soft-drink bottlers), a four-cavity tray (designed to accept four six-pack carry cartons, and a 12-cavity beer-bottle shipping case with integral folding top flaps (illustrated). The returnable plastic beer case is designed to compete—on a long-range cost basis—with conventional corrugated shippers. The supplier says that this new line of beverage carriers is available in a wide range of colors. The containers can be printed or labeled to customer specifications. For additional information, contact *Union Carbide Plastics Co., Div. Union Carbide Corp., 270 Park Ave., New York 17.*



Automatic plastic injection molder

The "Auto-Hornet Mini-Jector," an automatic injection molding machine, has been introduced by Newbury Industries. The hydraulically operated unit has horizontal clamping pressure of 18 tons. Maximum timer cycles (dry) are claimed to be 500 per hour; maximum casting area is 9 sq. in. Standard equipment includes converging bore injection assembly with pyrometer control of the three cylinder heaters. The rear plunger sleeve of this injection assembly reportedly can be interchanged in various sizes—$1\frac{1}{16}$, $\frac{7}{8}$, $\frac{3}{4}$ and $\frac{5}{8}$ in. The ram and bore also are said to be easily interchangeable. For details contact *Newbury Industries, Inc., Newbury, O.*

Compact automatic checkweigher

A new Selectrol compact automatic checkweigher, called Model 1205-S, has been introduced by Exact Weight Scale. Designed for use where floor space is at a premium, the over-all dimensions are 20 in. deep and 22 in. long. Height is adjustable from 35 to 40 in. The checkweigher is said to

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PAMPER CUSTOMERS
BY PACKAGING OUR CONES IN
UNION CARBIDE VisQueen Trade Mark
POLYETHYLENE FILM
AND
THEY LOVE IT!

Illinois Baking Corporation of Chicago finds wrapping their vanilla and rainbow ice cream cones in VISQUEEN polyethylene film is mighty good business.

"We like VISQUEEN film's clarity and quality, and its uniformity assures speedy, trouble-free packaging production. What's more, our customers—both stores and consumers—like our neater-looking, more sanitary, fresher product and sales increases definitely prove it."

Mort Wolfson
"Home-Pak" Sales Director

If your product can benefit from attractive packaging---top-grade "poly" that safeguards contents—performs perfectly on your packaging equipment—we recommend you investigate the superiority of VISQUEEN polyethylene film.

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CANADA LIMITED, Lindsay, Ontario
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automatically weigh, classify and separate packages by correct weight, over weight and under weight at speeds up to 200 per minute—depending on accuracy requirements and product handling characteristics. Standard models will weigh packages in a range up to 12 oz. The scale is reported to be removable by means of hinged access panels to provide easy inspection and repair. The supplier notes that many accessories—such as intake conveyor belts, discharge section with segregating gates, gravity feed, recorders, counters and visual and audible signalling devices—are available with the unit. Electrical output signals from the weigher reportedly may also be used to remotely control machinery or production processes. *The Exact Weight Scale Co., 541 E. Town St., Columbus 15, O.*

Valve-type controlled-flow applicator

Dab-O-Matic has introduced a new development in its Dab-O-Matic valve-type controlled-flow applicator for liquid and viscous products. Especially recommended for shoe polishes, it is also said to be suitable for silver and copper polishes, hair tints, color applications and many industrial products. The unit's construction reportedly offers direct and measured product application. Only slight pressure on the top of the applicator is needed to apply the product in desired quantity, without dripping or waste, says the firm. The reservoir carries about a half dozen applications without re-inverting the bottle. By pressing the top pad, the spring-type valve is opened, the liquid fills the reservoir and is dispensed through the applicator pad. Because of the flexible valve and the high porosity of the pad, the supplier reports that product flow is immediate and application is instant. The quantity of liquid applied can be regulated by the size of the valve and the thickness and density of the foam pad. The plug-like applicator is molded of polyethylene and fits into the neck of the bottle. The pad is polyurethane sponge which is locked into the plug by heat and pressure swedging. The valve is made of treated stainless steel wire with a cone-shaped tip. This tip is coated with liquid Neoprene which, when dried and fitted into the mold of the plug, reportedly provides an air- and liquid-tight seal. *Dab-O-Matic Corp., 15 W. 44 St., New York 36.*

Bale opener and case set-up machine

Systemation, a Bemis affiliate, has made available an automatic bale opening and positioning machine and a case set-up, loading and sealing machine. The Sysco-matic bale opener is said to be designed for maximum versatility and reportedly can be integrated into most existing bale-packing lines. No change in the discharge drop-off of the bale packer is required, according to the manufacturer. The pneumatically-electrically powered unit can handle 2- through 10-lb. bales and can be operated at speeds up to 15 bales per minute, the supplier says. The automatic case set-up, loading and sealing machine is reported to be capable of handling various sizes of end-loaded corrugated containers and to be easily adjustable for different sizes. The new machine, called Sysco II, reportedly can be operated at speeds up to 10 cases per minute. The supplier also claims that it can be integrated with most existing production machines to form an automatic packaging system. The unit can be adjusted to handle half-pint, pint, quart and gallon containers and can be utilized to load fibre boxes, overwrapper multi-packs and paperboard boxes. For additional information contact *Bemis Bro. Bag Co., Systemation Corp., 111-H N. Fourth St., St. Louis 2.*

Odor-free foil-lamination adhesive

Resyn 33-8012, a vinyl-casein adhesive for foil laminations claimed to have special advantages for use in food packaging, has been introduced by National Starch & Chemical Corp. The adhesive is reported to be effective in bonding foil to a variety of paper and board stocks and weights. It has virtually no detectable odor, the supplier notes. The substances used in the adhesive are also reported to have been cleared for food-packaging use by the F&DA. The adhesive is said to have a low foam tendency, which makes possible high-speed operation without the need for repeated addition of de-foamers, the company says. Excellent resistance to water, grease and temperature change are other cited advantages. A high solids content is said to give the adhesive faster set at high speeds and to reduce the chance of corrosion. The product's solids content and high viscosity keeps it on the surface of porous stocks, lessens down time, lowers glue costs and produces a smoother printing surface, says the company. *National Starch & Chemical Corp., 750 Third Ave., New York 17.*

Paperboard-and-plastic bulk-milk container

New from Weyerhaeuser is a disposable paperboard-and-plastic dispensing container for bulk quantities of milk. The sturdy, leakproof container is designed to upgrade packaging efficiency in dairies while lowering over-all costs. It is reported to weigh only a fraction of a bulk-milk can and to be virtually puncture-proof. Because the new container is shipped flat for in-plant assembly, the supplier notes, inventory can be stocked in one-tenth the space required by cans. Four-high stackability of the lightweight containers when filled is claimed to permit a 50% savings in storage space. The outer container consists of four-ply heavy-duty kraft board, laminated with moisture-barrier materials. The inner liner is a sterile plastic bag fitted with a dispensing tube. The cylindrical container reportedly can be handled on standard milk-dispensing machinery. Marketed by the supplier's Plastics Dept., the new container is available in 3-, 5- and 6-gal. sizes. *Weyerhaeuser Co., Plastics Dept., Beverly, N.J.*

Caser with double-case discharge

FMC Corp. is offering a modification of its Model 3 non-shock caser with double-case discharge nozzle that is capable of loading certain can sizes into top-opening shipping cases. The modification is said to permit the interchangeable use of two small-size cases or a single large case without sacrificing total can output. Casing patterns for which this modification may be made are those made up of 202 by 306 to 303 by 406 can sizes. Model 3 casers now handling can sizes within this range may be easily converted, the supplier notes. The modification is reported to consist of

[Continued on page 174]

your GAYLORD man is a corrugated connoisseur

He has the knowledge and experience to give you sound advice about the type of corrugated or solid fibre board that bests suits your packaging situation.

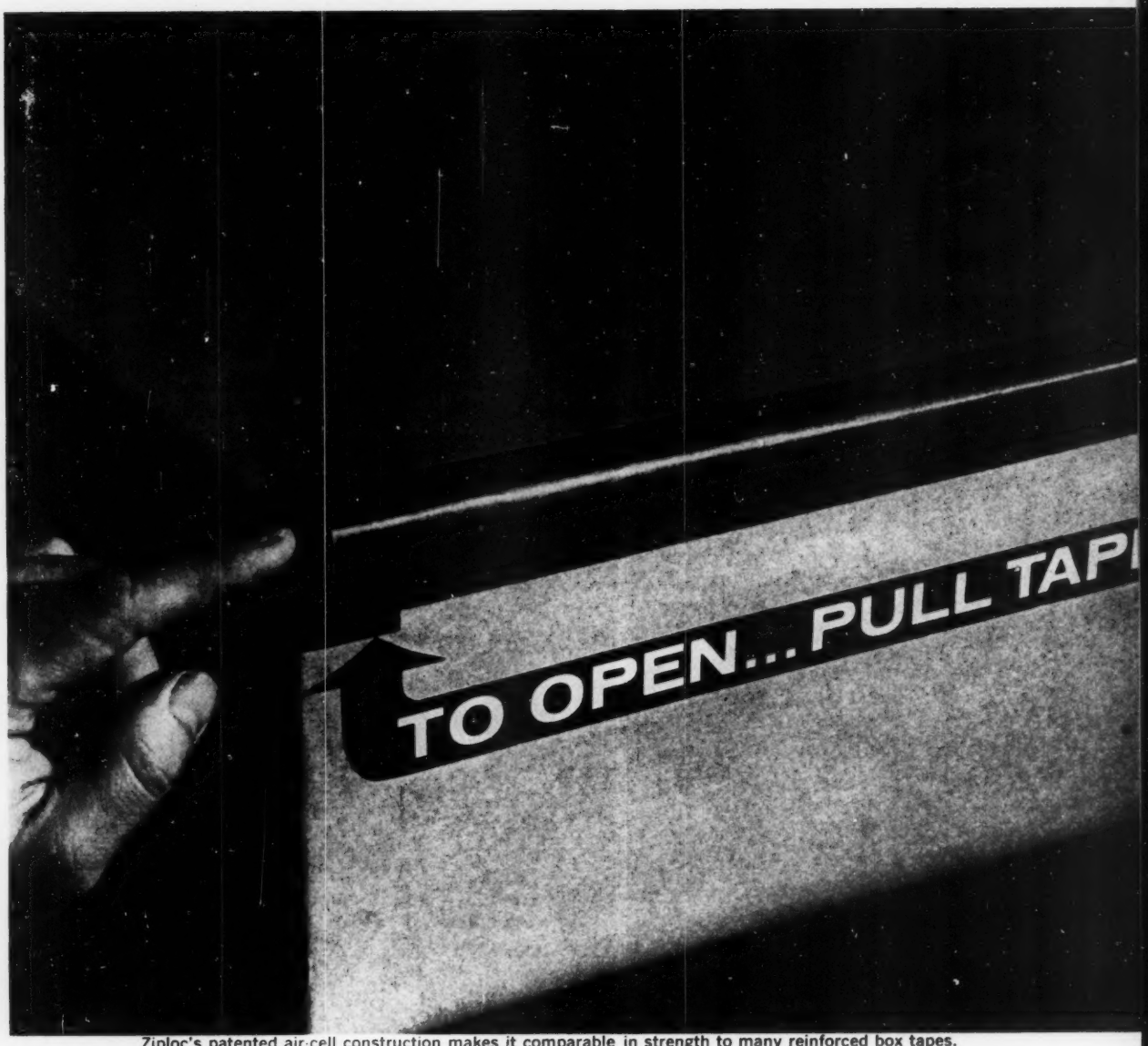
He probably can suggest several ready-made answers to the container question foremost in your mind right now. After you make your choice, Gaylord tailors your box from a practically unlimited range of board.

Stop wondering if your packaging is practical. Call your nearby Gaylord Man now and find out!

CROWN ZELLERBACH CORPORATION
GAYLORD CONTAINER DIVISION

IN CANADA • CROWN ZELLERBACH CANADA, LTD. VANCOUVER, B. C.

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

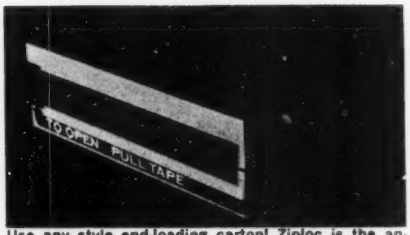


Ziploc's patented air-cell construction makes it comparable in strength to many reinforced box tapes.

"Now! A new easy-opening Box Tape

At last! A tear strip tape that lets you take *full* advantage of the economies of end-loading cartons! It's new Ziploc—the tear strip tape that's low in cost . . . yet opens neatly and quickly. New Ziploc tape can withstand the abuse of shipping, stacking, and handling! Made by The Gummed Products Company Division, Ziploc complies fully with Section 11, Rule 41, Manufacturers' Construction Joints of Corrugated Fibre Boxes.

Ziploc Tape gives you *all* these advantages because of its exclusive rayon zip channel and patented air-cell construction.* What's more, Ziploc has positive, permanent adhesion



Use any style end-loading carton! Ziploc is the answer for either corner or in-panel closure.

Ziploc's exclusive rayon zip channel assures arrow-straight opening with one easy pull.

for end-loading cartons...ZIPLOC!"

Ziploc's easy opening eliminates damaged contents and extra handling. Saves time—makes price marking a breeze!

to prevent hidden pilferage . : . assures top impact strength!

Check with your carton supplier, or write us for full facts and free samples of new Ziploc Box Tape for end-loading cartons. You'll quickly see the shipper and customer benefits that Ziploc Tape provides.

"Trojan Quality Products"

*Manufactured under Patent #2651588

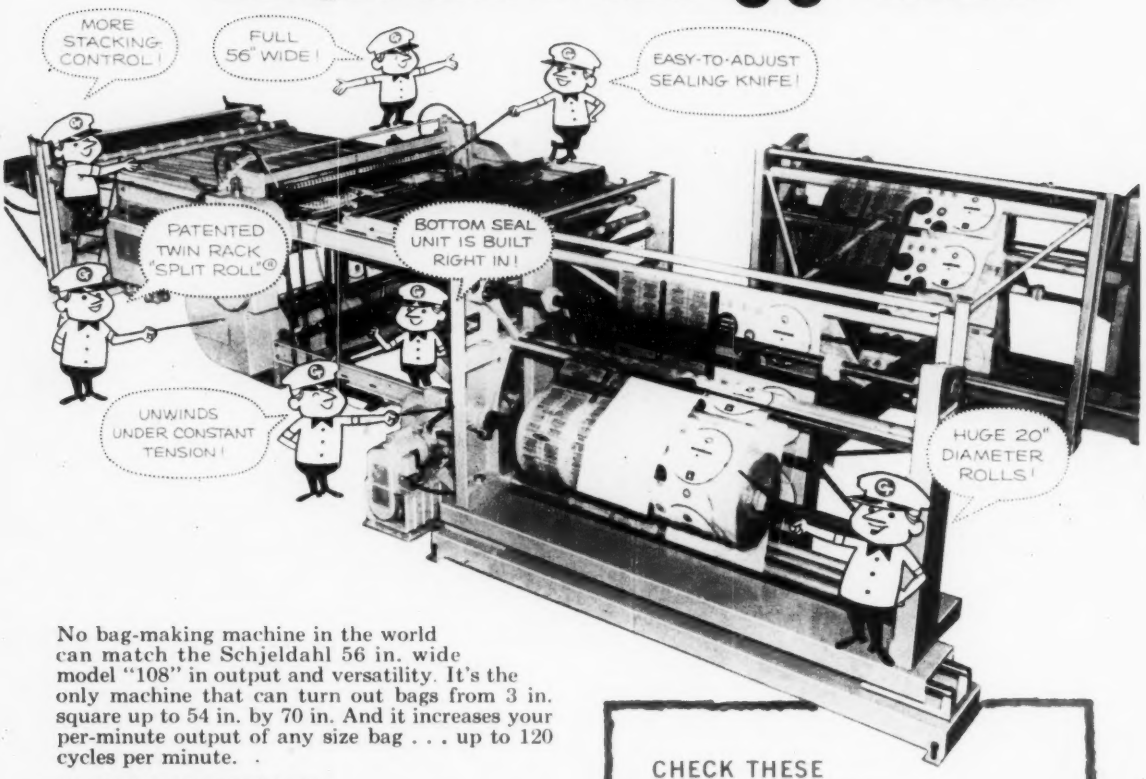
The Gummed Products Company

Division **St. Regis Paper Company** · Troy, Ohio

W·I·D·E·S·T...

Most Versatile Bag-Making Machine Ever

Schjeldahl's NEW 56" MODEL


MORE STACKING CONTROL!
FULL 56" WIDE!
EASY-TO-ADJUST SEALING KNIFE!
PATENTED TWIN RACK "SPLIT ROLL"®
BOTTOM SEAL UNIT IS BUILT RIGHT IN!
UNWINDS UNDER CONSTANT TENSION!
HUGE 20" DIAMETER ROLLS!

No bag-making machine in the world can match the Schjeldahl 56 in. wide model "108" in output and versatility. It's the only machine that can turn out bags from 3 in. square up to 54 in. by 70 in. And it increases your per-minute output of any size bag . . . up to 120 cycles per minute.

SIDE-WELD OR BOTTOM-SEAL

You can change-over from bottom-seal to side-weld quickly and easily on this giant Schjeldahl machine. A bottom-seal, "flying knife" unit can be built right into the machine for fast change-over . . . keeping down-time to a minimum.

YOUR Schjeldahl MAN HAS THE WHOLE STORY

Let him show you how this new 56" machine can solve your converting problems and open up new areas of business. Schjeldahl offers 8 different models . . . in 41" and 56" sizes. Your Schjeldahl representative also has information on the complete line of profit-making Schjeldahl accessories for handling any converting job.

PRODUCTS GT SERVICES **G.T. Schjeldahl Co.**

NORTHFIELD, MINNESOTA

Putting Tomorrow's Materials to Work Today

SATELLOON Schjeldahl

CHECK THESE EXCLUSIVE FEATURES

PATENTED TWIN RACK "SPLIT-ROLL"® offers the versatility of running two different draw lengths and setting each independently. Assures you of greater accuracy in high speed, multiple web operation.

NEW ALUMINUM BOTTOM SEALING KNIFE gives constant heat throughout the bar for better sealing action. Temperature can be controlled to meet any sealing requirements. Knife is easily adjustable.

WIDE BELT CONVEYING gives greater control and more positive stacking.

CONTINUOUS UNWIND keeps web under constant tension to eliminate stretching; also allows more control for attachments.

HANDLES ROLLS 20" in diameter. You can make longer runs with less shut down to change rolls.

HANDLES FULL RANGE OF POLYETHYLENE—flat or gusseted tubing, flat or prefolded sheeting, printed or unprinted. For bottom-seal: .001 to .004 mils. For side-weld: .00075 to .004 mils.

*Registered U.S. Patent Office

FOR THE COMPETITIVE EDGE IN PACKAGING CALL A-C-T...ALUMINUM CONSULTING TEAM!!

A-C-T gives you the services of five groups of specialists skilled in all phases of aluminum packaging. Package Design, Package Development, Process Development, Package Equipment, Research and Food Technology. Their work in connection with leading converters is coordinated by a Clearing Committee. Your local Kaiser representative is the focal point for all A-C-T services. He is your "Man on A-C-T."

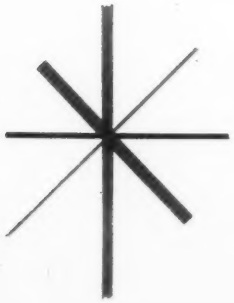
Downyflake Foods, Inc., had a tough problem. They needed a package in which their new muffin product could be frozen, sold, and baked in the consumer's oven. A deep-well, multiple-cavity package fillable on automatic equipment and without carton or overwrap. Rigid foil was the answer, yet leading designers said it wouldn't work. A-C-T, Kaiser's Aluminum Consulting Team, proved beyond any doubt that it could...and did it! Another success story, dramatically demonstrating (1) the versatility of Kaiser Foil for packaging is unlimited, and (2) your packaging problem can also be solved, creatively and competitively, with Kaiser Aluminum Packaging. For details, write A-C-T Packaging, Dept. 3, Kaiser Aluminum & Chemical Sales, Inc., 300 Lakeside Drive, Oakland 12, California.

KAISER ALUMINUM

"New leadership in the world of aluminum"

SEE "HONG KONG" AND "MAVERICK" WEEKLY ON ABC-TV NETWORK

*Trademark Kaiser Aluminum & Chemical Corp.



Better labeling...less work ...the HEAT SEAL way!

Heat Seal requires no glue, no water, no clean-up. Ideal for bag headers and containers of practically all shapes and materials. Instantaneous or delayed action. Made to exact specifications, for use with high speed equipment. Continuous rolls or individual.

Send your present labels for redesign, without charge or obligation, or for estimate on printing in present form. A. M. Steigerwald Company, 1440 West Wrightwood Ave., Chicago 14, Ill., LA 5-5920.

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Stollmaier & Son, Inc.
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Parkview 6-0296

LOUISVILLE, KY.
Practical Products Co.
319 Jefferson St.
Juniper 3-8422

CLEVELAND 21, O.
A. C. Foster
4040 Mayfield Rd.
EVergreen 2-7555

KANSAS CITY 12, MO.
A. B. Mason
4619 Jefferson St.
Victor 2-6580

MILWAUKEE, WIS.
H. C. Lackowski
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Garden 5-5850

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J. E. & J. L. Moor
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Taylor 4-5309

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John H. McLaren,
500 West 111th St.
Monument 2-0237

DAYTON 6, OHIO
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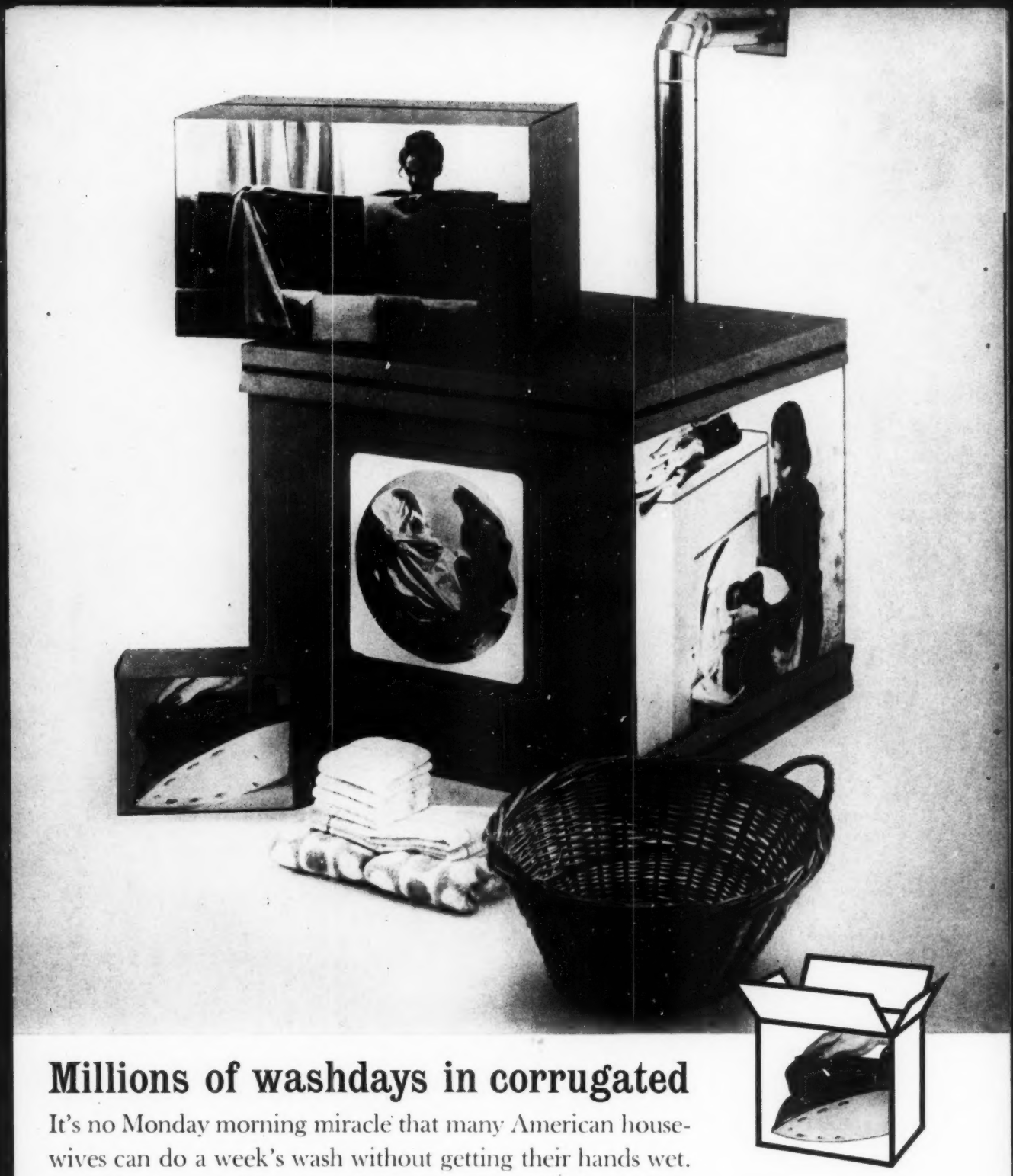
GOLD OR SILVER EMBOSSED • DIE-CUT OR SQUARE • FOIL SEALS AND TAGS • FLAT OR CONTINUOUS ROLLS FOR HAND OR AUTOMATIC USE • HEAT SEAL • PRESSURE SENSITIVE • SPECIAL ADHESIVES



Millions of washdays in corrugated

It's no Monday morning miracle that many American housewives can do a week's wash without getting their hands wet. And it's not surprising that thousands of automatic washers, dryers and electric irons are shipped in boxes by Hinde & Dauch Division... most dependable protection an appliance ever had. Leading appliance makers know they can look to H & D for economical *corrugated containers in volume.*

West Virginia Pulp and Paper

Hinde & Dauch Division

16 Plants • 42 Sales Offices • Sandusky, Ohio

Sounding BOARD

WE ASK THE READERS

Is mass production costing packages their individuality?

Carl J. Strobe
Art & Packaging Director
Tidy House Products Div.
The Pillsbury Co.
Shenandoah, Iowa

Mass production does not dictate conformity. To the contrary, our mass-production developments have been the package designers' greatest asset. The creative work done by European designers with exotic materials, clever construction and distinctive design treatments has always been admired by our marketing people. Until the development of our mass-production methods to handle these new films, plastics and paperboards, we could not compete with European hand labor.

The technical advancement of machinery to handle large-scale production and conversion of plastic films, aluminum foil, special laminations, paper cans and tubes, liquid-tight paper containers, multipacks, overwraps, capsules, pouch packs, molded and blown plastics, foamed plastics, blister, skin and stretch packs, aluminum cans, metal and plastic tubes, lightweight glass bottles, plastic closures and aerosols, has given today's designer the ability to create the packaging individuality that makes sales. A few years ago the manufacturer of a liquid product could only choose between glass and "tin" cans for his packages. Today he has the advantage of being able to put his product in molded or blown plastics; plastic, paper or foil laminations; paper or plastic tubes; lightweight glass or aluminum cans, etc., all of which can be handled at mass-production speeds and costs.

Many a manufacturer who finds he is losing his "individuality" might best review this issue of MODERN PACKAGING and see how the many developments described here can help him mass produce that "individuality" back into his packaging.

Charles A. Gnaegy
Director, Design & Packaging
Mead Johnson & Co.
Evansville, Ind.

Certainly there is much conformity in packaging right now, especially in the technical, or physical, aspect. Even though research programs constantly turn up new methods and materials, there will always be some conformity for products of a similar nature.

To a certain extent, physical conformity is necessary and desirable. After all, most kitchens and storage spaces are built to standard specifications. Also, high-speed filling machines impose many restrictions on designers and engineers so that the *avant-garde* approach in packaging is seldom used. To obtain basic individuality in the face of such problems is difficult, but certainly not impossible, as a great many of our package designers have well demonstrated.

The solution seems to be in quite another direction—that of total planning for corporate, or product, image.

The package is only one part of a multifaceted program that brings a product to consumers. It is unreasonable to expect even the best package to accomplish the sale singlehandedly. Other steps included in the program are advertising, promotion and merchandising. One of the most important phases is the quality of the product itself and the attitude of the manufacturer toward marketing and promotion. All have a bearing on the ultimate sale. If any one area fails to integrate with the others, results may be disappointing. If all work together in a consistent pattern, progress is almost certain. For the greatest marketing potential, I believe that there can never be any real substitute for the totally planned, totally integrated approach.

Clifford A. Carlson
Advertising Manager
Dean Milk Co.
Franklin Park, Ill.

In answer to the question, we at the Dean Milk Co. can emphatically reply that for almost two decades we have proudly adhered to one basic theme, "Country Charm." All visual materials produced for consumer and trade advertising, for recipe folders, point-of-purchase material and packaging have constantly repeated the theme visually. Therefore, in the preparation of all our packages, this basic premise is constantly kept in mind. As a direct result, the Dean's family of packages have a highly individualistic look, rather than a sameness. By constantly reiterating this "personality" in all graphics, we have been able to underline the basic "Country [*Continued on page 202*]

In Packaging...

THE RIGHT ADHESIVE IS LIKE THE RIGHT PRODUCTION MANAGER

Maybe you can't compare apples and oranges, and most likely no one wants to be compared with an adhesive. But the *right* production man and the *right* adhesive can have an important effect on profits.

The right production manager not only cracks the whip, he applies an intimate knowledge of his men and machines to a production process calculated to turn out a quality product . . . at maximum profit.

Similarly, to contribute to *profitable* production, the right adhesive must do more than just adhere.

Swift's hundreds of resin adhesives for packaging are specifically formulated to offer the user *selectivity* in speed, machine-ability and tack characteristics. They are high in strength, strong in tack, long in machine-ability—and many are versatile too.

Don't overlook the profit *opportunity* in properly specified, properly used packaging adhesives. *Swift* is the informed source for prompt, courteous, and *authoritative* service. 24 strategically located Swift adhesives plants produce a complete line of packaging adhesives for the most specific applications. Call your nearby Swift Adhesives Specialist, or write for further information. Swift & Company, Adhesive Products Department, Chicago 9, Illinois.

To Serve Your Industry Better

WITH THESE ADHESIVE PRODUCTS

RESINS AND RUBBERS IN EMULSION OR SOLVENT;
DRY, LIQUID AND FLEXIBLE ANIMAL GLUES
LIQUID DEXTRIN ADHESIVES

A-59

MILPRINT BRINGS YOUR CUSTOMER ENTHUSIASM TO A BOIL

Past package failures inhibited the bright future once predicted for boil-in-the-pouch foods. Consumer acceptance was lukewarm. But now—Milprint has the answer in KETTLE-REDI pouches!

KETTLE-REDI pouches by Milprint are the first boil-in-pouches that not only won't delaminate even under temperature extremes from sub-zero to boiling, but remain unaffected by most chemical combinations, resist tearing and scuffing, *and* offer high gloss reverse printing that's *locked* in between the laminates. It can't touch food; can't rub or flake off!

In over 60 years of flexible packaging leadership, Milprint has consistently come up with answers to tough technical problems like this one. One reason: Milprint research and design experts draw on the widest variety of materials available anywhere—and are not obliged to favor any one. This means an "open mind" approach to your packaging problem—no "selling off the shelf," but a custom-built package that meets your specific marketing needs at economical cost. Review your packaging on a regular schedule with Milprint to keep ahead of your competition. Start now—learn how . . .

Milprint, Inc., Milwaukee, Wis., Sales offices and plants across the nation

KETTLE-REDI is a Milprint trademark

MILPRINT PACKAGING GIVES YOUR PRODUCT **MARKETING POWER**

Libby

LOOKS TO LYNCH ROBO-WRAP FOR 75 FROZEN VEGETABLE BAGS PER MINUTE

At Libby, McNeill & Libby's Grandview, Washington plant, a Model 211-V Lynch Robo-Wrap has been forming, filling (with special slide gate self-cleaning volumetric feeders designed for frozen foods by Lynch) and sealing 2½ mil low-density, 1½ lb. charge poly bags at a speed of 60 per minute . . . 16 to 24 hours a day . . . 5 days a week . . . for 1½ years.

But . . . Speed will be increased to 75 bags per minute when modification of sealing dies is completed. Robo-Wrap's exclusive hand-over-hand action makes these speeds possible.

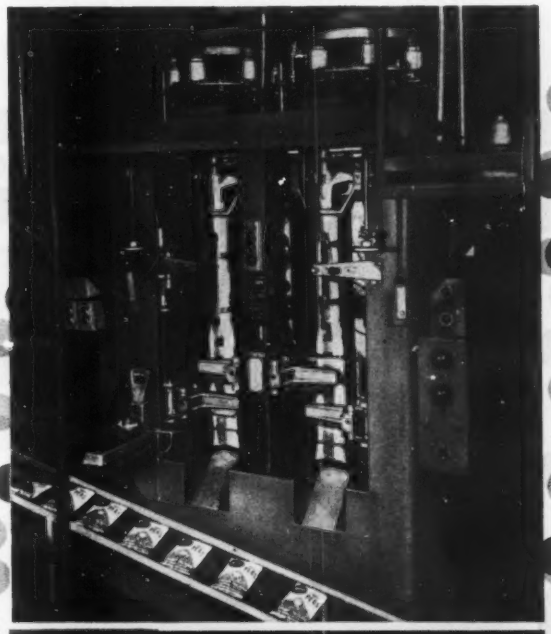
Lynch engineers ask that you consider this: when you *begin* with Robo-Wrap's basic excellence and versatility —you extend the earning life of your investment, protect against obsolescence, *and get increased production at the same time.*

Whether you package liquids, powders, solids or granules . . . in poly, cello, PVA, plastic or laminate pillow packs . . . look to Lynch for automated systems that cut costs *all along the line.*

LEADERS LOOK TO LYNCH...

for machines that package almost everything.

Atlanta • Chicago • San Francisco • Englewood, N. J.



LYNCH
CORPORATION
Anderson, Indiana, U. S. A.

...consult **WESTCHESTER** — *compounders of polyolefin colors and special formulations*

VOLUME EXTRUSION of color formulations combines Westchester's continuing tradition of custom processing . . . with the many advantages of new production skills. Our formulating knowledge, based on craft and scientific precision, is the product of 14 years of service to the thermoplastics industry.

The staff and facilities of Westchester are available to your engineering department . . . for consultation on any problem involving polyolefin colors or special formulations.

The new FDA certified Westchester colors are now available. Approved for food, drug and cosmetic packaging — These colors are supplied with a registration number, attesting FDA approval of the pigments!

WESTCHESTER PLASTICS, INC.

326 WAVERLY AVE. ◎ MAMARONECK, N. Y. ◎ Owens 8-7410

The eye-appeal of your package

SPARKLES THRU A RUGGED LIFE

The scuffing, the bitter zero cold, and the manhandling doesn't ruffle the high-gloss beauty of your package when an IC*-62 Polyester Coating is its guardian.

Remarkably versatile, this coating is infinitely more durable than gloss waxes, resistant to ultraviolet, good frost release, gives off no noticeable odor after aging. Its brilliant colors and tints won't burn out, and low cure temperature protects moisture content. It gives weeks of catalyzed stability in closed containers.

And *now* you can glue IC-62 with IC (Angier) adhesives (no need for dry strips). *Now* you can have completely sealed cartons with the production and protection advantages of IC-62, at lower cost than press varnish. Write for details about IC-62 —another outstanding result of IC Research and Development.

Interchemical
CORPORATION
Finishes Division

Headquarters Office: 224 McWhorter St., Newark 5, N.J. Factories: Chicago, Ill. • Cincinnati, Ohio • Elizabeth, N.J. • Los Angeles, Calif. • Newark, N.J. • Mexico City, Mex. In Canada this product is made by Auicraft Paints Limited, Toronto, Ontario, and sold under its trademark. **IC is a trademark of Interchemical Corporation.*

to sell more toys to girls and boys . . .

LOUIS MARX BLISTER PACKS IN CELANESE ACETATE

The world's largest toy maker—Louis Marx—knows full well the value of transparent packaging. These crystal clear blisters of Celanese Acetate show his toys at their attractive best . . . keep component parts separate and safe from dust . . . stand up over long periods of shelf life.

Moreover, blister packs of Celanese Acetate catch the eye and the imagination . . . *sell products.* That's why manufacturers of everything from bulbs to bearings depend on this economical method of packaging to move their products in today's competitive market place.

Providing the information—and materials—for making better packages is a specialty at the Celanese Materials Packaging Center. For information, write to: Celanese Plastics Company, Dept. 208G. 744 Broad Street, Newark 2, N. J.

Celanese®

MATERIALS FOR Celanese MODERN PACKAGING

POLYETHYLENE FILM . . . ACETATE FILM AND SHEETING . . . PLASTIC CONTAINERS

Celanese Plastics Company is a Division of Celanese Corporation of America • Canadian Affiliate: Canadian Chemical Company Limited, Montreal, Toronto, Vancouver • Export Sales: Amcel Co., Inc., and Pan Amcel Co., Inc., 522 Fifth Avenue, New York 36

Hold labels tight under all climatic conditions with **THERMA-TITE**

▪ THERMA-TITE Bottle Label Adhesive for high speed machines gives instant tack, provides excellent coverage and bonding strength.

▪ THERMA-TITE is formulated to adhere to cold bottles without crystallizing and withstands thermal-shock caused by sudden exposure to heat or cold. It works equally well with automatic or semi-automatic bottle labeling machines and will label warm and moist bottles subjected to all storage conditions, including refrigeration.

MORNINGSTAR-PAISLEY, INC.

630 WEST 51st STREET, NEW YORK 19, N. Y.

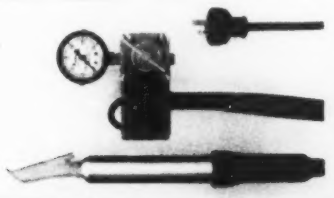
Adhesives / Starches / Gums / Specialty Chemicals

Offices in 26 principal cities from coast to coast. In Canada: Morningstar-Paisley of Canada, Ltd., Toronto

Packaging Notes

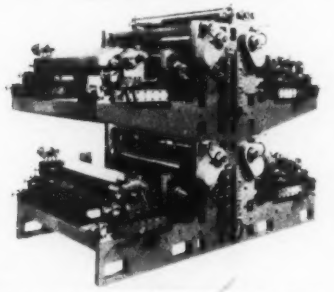
Paste spackling for patching cracks and nicks in plaster, wood and wallboard is now convenience-packaged in a ½-pint polyethylene tube. The manufacturer points out that easy, one-hand operation of the tube allows the user to keep the other hand free for spatula or putty knife.

Versatile hand-welder for polyethylene can be used for tacking or high-speed



welding at a production rate of 60 in. per min. Patented design maintains constant flow of high-temperature air through specially designed tips. Unit has a 3-heat metal element with an output of up to 800 watts and a 16-foot air-hose (with electric cable inside). Can be plugged into any 115 volt a-c outlet.

Expandable flexographic press permits the converter to add color units on a "building block" principle—lowering ini-



tial investment, yet allowing for future expansion. Side frames of additional units are merely bolted onto special prebored fittings within the existing frame.

This press is designed for use in in-line extruding and bag making, as well as roll-to-roll printing. It can print up to six colors, comes in sizes to accommodate web widths of 24 to 42 inches.

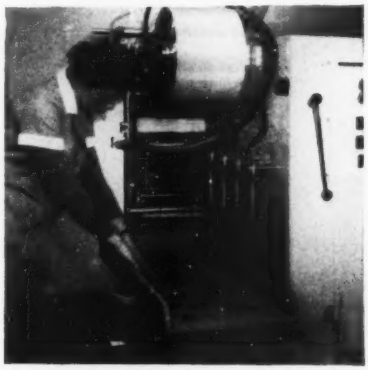
Polyethylene-coated cartons are now being used for chilled orange juice as well as milk. Leaking and flaking—shortcomings of wax-coated containers—have reportedly been virtually eliminated.

Polyethylene-Coated Cellophane Continues To Gain Ground In Food Packaging Field

Already Widely Used for a Variety of Products, It's Making New Inroads as a Pouch Package for Hard-to-Contain Liquids

Polyethylene-coated cellophane is well established as a packaging material for nuts, candy, fruit-flavored ice suckers, cold cuts and an assortment of dairy foods. And look for it to advance. Armed with unique capabilities as well as past successes, it's invading and capturing new areas of this fertile field.

Pouch packaging of hard-to-contain liquids is a typical growth area. The toughness, flexibility, heat sealability, high clarity and moisture resistance of polyethylene-coated cellophane make it a natural for this purpose.



Operator inspects finished polyethylene-cellophane pouches produced and filled automatically. Machine, one of seven installed in successful contract packager's new plant, will soon have an electric eye attachment to spot "leakers."

A Long Island, N. Y., manufacturer of Chinese condiments met with such success using it to pouch-package his soy sauce and hot mustard, he's branched into contract packaging.

To meet the demands of the new venture, a new plant equipped to handle five different liquids simultaneously was built recently. It's equipped with seven packaging machines with capacities ranging up to 200 one-half-ounce pouches per minute and up to 50 twenty-four-ounce pouches a minute. A New Jersey supplier provides the rolls of polyethylene-cellophane laminate—some clear, some white-pigmented.

The plant's general manager sees cellophane extrusion-coated with a thin layer of polyethylene made from U.S.I.'s PETROTHENE 205-15 resin as a key to his company's steady advance: "...not only does the polyethylene-cellophane do a better job than other packaging materials, it costs less. The high greaseproofness and impermeability at low coating weights of the PETROTHENE resin has enabled us to use 1½-mil or 2-mil laminates for packaging products which usually require thicker pouches. Also, the laminate's combination of protective strength and display-case clarity adds significant sales value to products packaged in it.

"We look forward to taking part in the coming upsurge of individual portion packaging. On the immediate horizon are contracts to package other condiments and fruit-flavored ice suckers."

New Blending Resin Introduced by U. S. I.

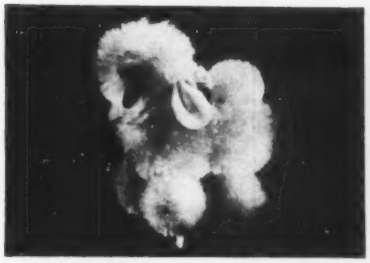
Development of a new injection molding blending resin, PETROTHENE 250 Polyethylene (density 0.926, melt index 250), has just been announced by U.S.I. Very high flow and ease of blending are its key properties.

It can be blended with lower melt index resins to improve their flow for injection molding or used alone for non-critical injection molding applications.

In trial runs at U.S.I.'s Polymer Service laboratories, items molded from blends of PETROTHENE 250 and lower melt index resins had physical properties superior to those molded from blends utilizing polyethylene waxes. Also, items molded from the straight resin exhibited very high gloss and good surface smoothness, as well as good stiffness and high impact resistance at room temperature.

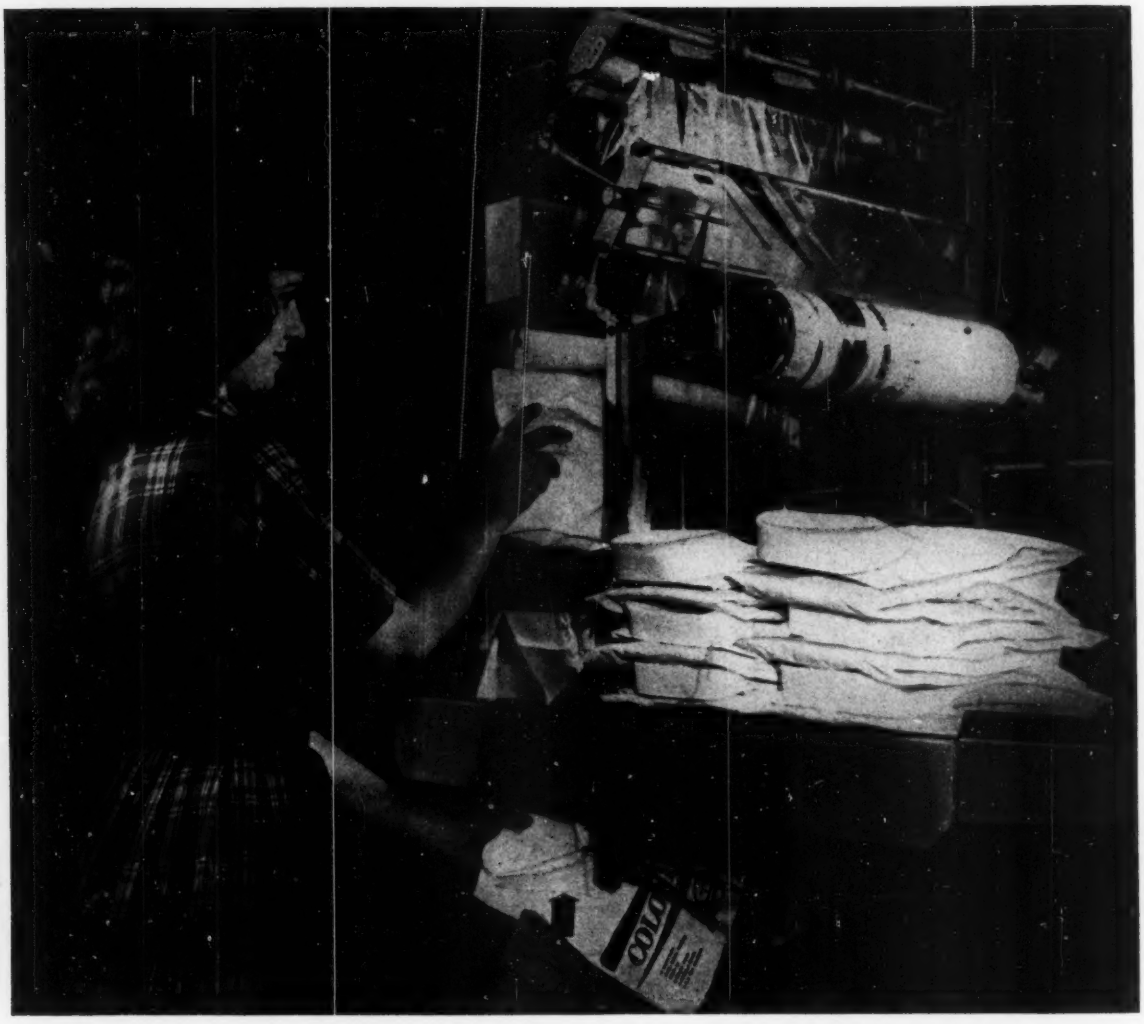
Technical data, including a blending graph, can be obtained from U.S.I. Write Technical Literature Dept., U. S. Industrial Chemicals Co., 99 Park Ave., New York 16, N. Y.

Best in Show



This toy dog wins a blue ribbon for demonstrating a new and unique use of polyethylene film. It's cleverly fashioned by a Texas woman whose deft hands also transform polyethylene film into toy rabbits, Christmas wreaths.

The poodle comes in black, white or pastel colors. Model shown sells for approximately seven dollars.



This semi-automatic machine at Colonial Corporation of America makes a polyethylene bag around each shirt using printed roll film.

AUTOMATED POLYETHYLENE PACKAGING CUTS COSTS 50%

Colonial Corporation of America boosts packaging efficiency and sales while halving packaging costs with polyethylene packaging system.

More than half of Colonial Corporation's yearly output of 30 million low-priced shirts is packaged semi-automatically in printed polyethylene bags. The bags are formed around the shirts on See-Safe machinery using rolls of printed polyethylene film. And the company plans to extend the system to its entire operation.

Sol Berger, president of Colonial, the country's largest producer of inexpensive shirts for men and boys tells why:

"Increased efficiency. One operator on each machine replaces four girls who handled the earlier manual bagging operation.

"Lower costs. When we switched from cellophane overwrap to polyethylene bags five years ago, we cut costs 35%. With the automated polyethylene packaging system, we cut costs another 50%. The See-Safe machines are relatively inexpensive. We figure we amortize each machine in about 6 months. This polyethylene packaging system lets us market shirts at a low price — as low as one dollar at retail for one of our biggest sports shirt sellers.

"Expanded sales and profits. The package, printed in various colors and automatically registered by the machine, is attractive as well as economical. The customer can see the merchandise through the transparent film. The bag is sealed on three sides with two spot seals at the bottom. This lets the customer feel the fabric, yet keeps the shirt well protected and in place."

Investigate the cost-cutting, sales-stimulating advantages of automated polyethylene packaging for your soft goods. As a producer of PETROTHENE® polyethylene resins from which film is made, U.S.I. has a trained staff of film and packaging engineers. They are available to work with you and your film supplier in finding the packaging system that is best for you. A call will put them at your service.

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Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
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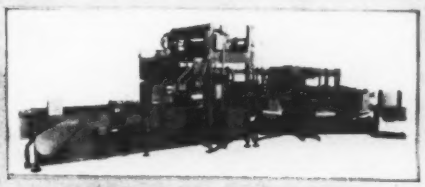
What?

Feed all these different sized cases, in random order, into one automatic case sealing installation?

Yes! It's being done. The Omnimatic-Rotopress automatically seals and discharges corrugated shipping containers of widely varying dimensions, fed to it in random order, at speeds up to 20 cases per minute. A choice of pre-set discharge patterns permits the simultaneous use of as many as five different Rotopress discharge stations, with sealed cases of different heights automatically discharged to separate take-away conveyors. The G.E. installation shown below, employing a unique circular compression unit, occupies only 144.9 square feet, and permits random feeding of cases that may vary in length from 8″ to 30″, in width from 6″ to 22″, and in height from 6″ to 18″. This machine can be built to accommodate your particular range of case sizes.



Packomatic Omnimatic-Rotopress operating at the General Electric Company's Trumbull Lamp Plant at Warren, Ohio.

WRITE for 8 page technical brochure giving complete design, application and dimension data. Request Packomatic Brochure 100-60.

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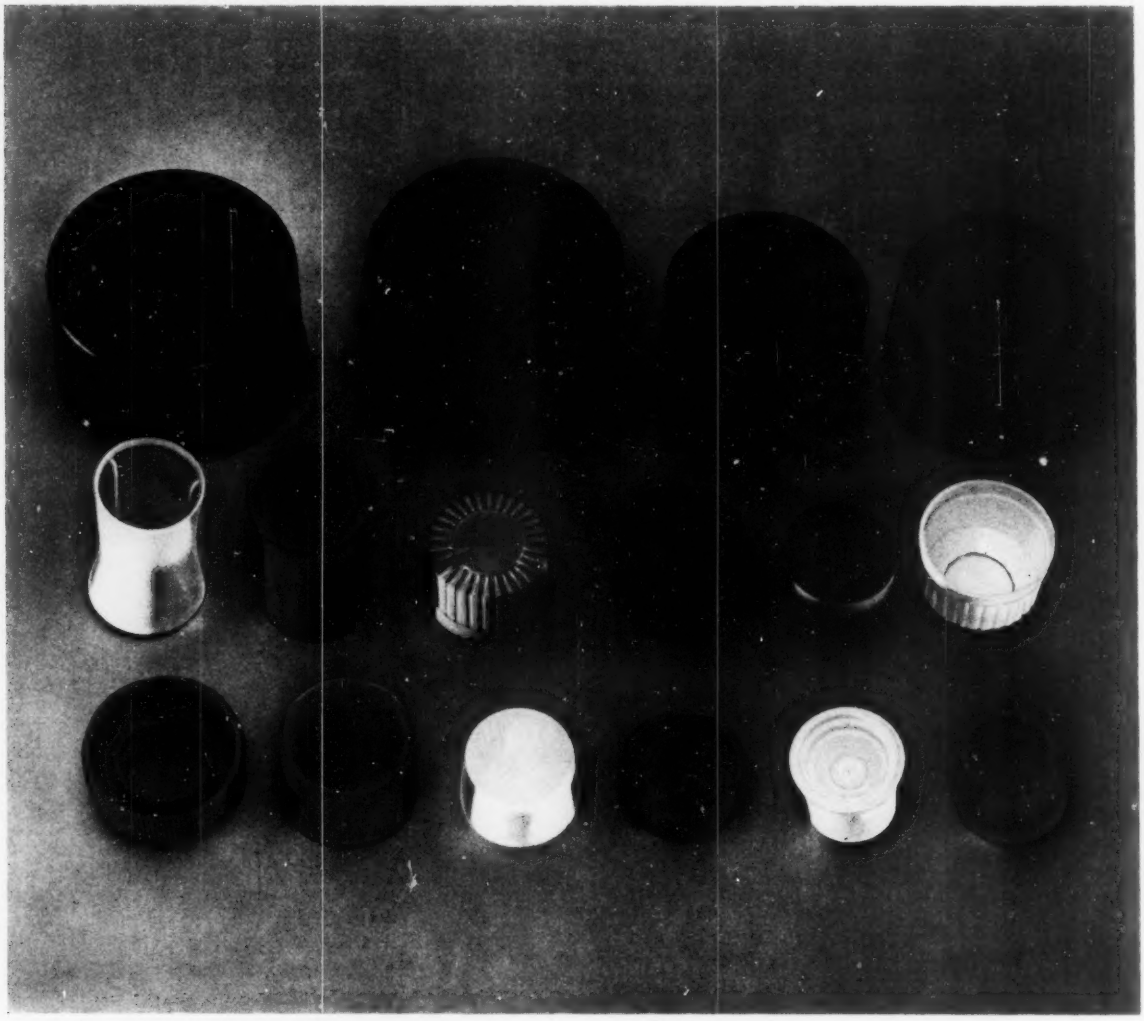
What's News in Plastics...



Cap it with Escon® polypropylene

The resilience of Escon lets you mold complex closures with reverse tapers—*without* parting lines. The rigidity of Escon permits use of conventional threads. And closures of Escon can be designed to eliminate the need for liners.

Whether you want closures with undercut locks, strip threads, snap caps or screw-on tops, versatile Escon polypropylene does an outstanding job every time, in a brilliant range of colors – including pearlescents.

Enjay does not make closures; it supplies Escon polypropylene to manufacturers of closures, containers and many other products. For more facts about the balanced combination of properties offered by Escon, write to Enjay, 15 West 51st Street, New York 19, New York.

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This new kraft is made in three heavy-duty basis weights: 110#, 100#, and 90#, which means it can be used in making more efficient and less costly master shipping containers for packaged units or for dry bulk materials. It also has wide applications in industrial bundling because of its flexibility.

Now you can offer your customers a tougher, superior bag or wrapper at lower cost because one ply is usually enough to meet his specifications—and that means lower converting costs for you.

For samples and complete technical data on this new extra heavy Kraftsman *Clupak* extensible paper, mail the coupon to: Kraft Division Sales, West Virginia Pulp and Paper Company, 230 Park Avenue, New York 17, New York.

**Clupak, Inc.'s trademark for extensible paper manufactured under its authority and satisfying its specifications.*

West Virginia Pulp and Paper

Kraft Division Sales, Dept. 272
WEST VIRGINIA PULP AND PAPER COMPANY
230 Park Avenue
New York 17, New York

Please send me full information on extra heavy Kraftsman CLUPAK extensible paper. I am considering it for:

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WORLD REPORT

*Digest of foreign packaging developments**

Switzerland

Prism-shaped container for liquids

A new type of container for liquids, made of high-density polyethylene, is reported to have many advantages because of its prism shape. It saves storage space and may be stacked in either vertical or horizontal positions. The location of the pour spout at the edge of one end is convenient for emptying. And handles are molded in one side of the prism shape in a way to permit one person to carry four of the containers at one time.

Germany

Welding plastics with heated aluminum strips

A method of seamless welding of plastics sheet material by means of an aluminum strip embedded in pressure-sensitive tape which is electrically heated is reported from Germany. Applications of the technique, originally developed by a French engineer, are seen in Germany for export packing of large machinery parts which are crated and afterwards enclosed in heavy-gauge polyethylene sheet of 0.1- or 0.2-mm. thickness. The material, first draped and folded over the crate, is joined at the edges with taping which is then heated to provide the weld.

Carton former with windowing attachment

For a London milling firm, which found that film windows already inserted in carton blanks tended to peel after storage, a German machinery firm (Fr. Hesser) has developed a unit incorporating a windowing device. The device cuts off strips of film from a reel (of any suitable type of plastic material) and glues them to the pre-cut carton blanks immediately prior to erection and filling.

Canada

Multi-cell carton changes fruit merchandising

A Canadian version of the egg-style carton for fruits and vegetables—a Eurostar award winner that was developed in Switzerland under the name of "Ovit"—stands a good chance of changing the packaging and merchandising of fresh fruit and produce in Canada. The carton, called the "Fruitmaster" is reported to equal an egg carton in rigidity, simplicity of design, economy and display potentials. The one-piece carton blank is made of 0.020-gauge paperboard and costs about the same as polyethylene bags.

England

Machine applies polyethylene threads on metal tubes

Polyethylene threads are being molded directly onto aluminum collapsible tubes by a new automatic machine developed in England. The technique for making the threads is by injection molding synchronized with a conveyor which feeds the tubes into an injection zone.

Netherlands

High-speed, side-weld bag maker

The high-speed, continuous-motion principle of a former bag-making machine adapted to the design of a new Dutch side-weld machine (the Renka Poly) reportedly achieves impressively increased output. A key to the new design is the use of circular sealing wires in place of former conventional sealing methods with hot knives. Production rates are estimated at 150 to 300 bags per minute when the machine is operated with one web only, but the machine can also handle two or even three more webs of bag material without encountering any difficulty, it is stated.

England

Trends in packaging freeze-dried foods

At least eight firms in England are known to be installing equipment for the processing and packaging of freeze-dried foods. This calls for new concepts in packaging, the most promising of which for commercial production, it is reported, is the flexible-film pouch contained in an outer carton—a trend that is noted in U.S. development also.

Five-layer export pack for paints

An English paint firm says few cans of paint are being damaged since adoption of a new container for export shipments that provides five-layer protection. The corrugated fibreboard shipping unit (Reed Corrugated Cases) consists of three main components: two inner containers, each holding four 1-gal. cans of paint, and an outer shipping sleeve with self-interlocking end caps that fit tightly around the inner containers. Flaps on the inner containers are designed to provide double walls of corrugated separating the paint cans from each other within the container.

Europe's first automatic aerosol line

Much attention has been given in European packaging publications to what is reportedly the first automatic aerosol-packaging line designed and built entirely in Europe. The installation in the plant of an English contract packaging firm (Aerofill, Ltd.) links an automatic 8- or 16-head product filler with a similar propellant filler and a vacuum-crimping machine. It incorporates what is said to be the first rotary vacuum-crimping machine in the world.

Carton former copes with many shapes

Versatility of the lock-tab principle of carton erection is illustrated by a machine developed in England which can handle many different sizes as well as a variety of shapes —including triangulars, wedges for cheese, boats, side-opening rectangulars and others. All are formed with one-piece blanks and the machine, it is claimed, can be changed from one type to another in a matter of minutes.

British Plastic Federation forms packaging group

A packaging group is being set up by the British Plastics Federation to consider standards, statistics, transportation, matters of public health and consumer protection in recognition of the importance of packaging to the plastics industry. BPF estimates that packaging accounts for 40,000 tons of plastics a year in Britain at a value of £200 a ton ($560). More than one-third of Britain's polyethylene consumption goes into packaging, it is stated—a large part for 100-million squeeze bottles produced yearly.

**For additional information, write: World Report Editor, MODERN PACKAGING, 770 Lexington Ave., New York 21.

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You expect the world's broadest line of aluminum containers from Ekco-Alcoa. You expect immediate delivery through its network of distributors.
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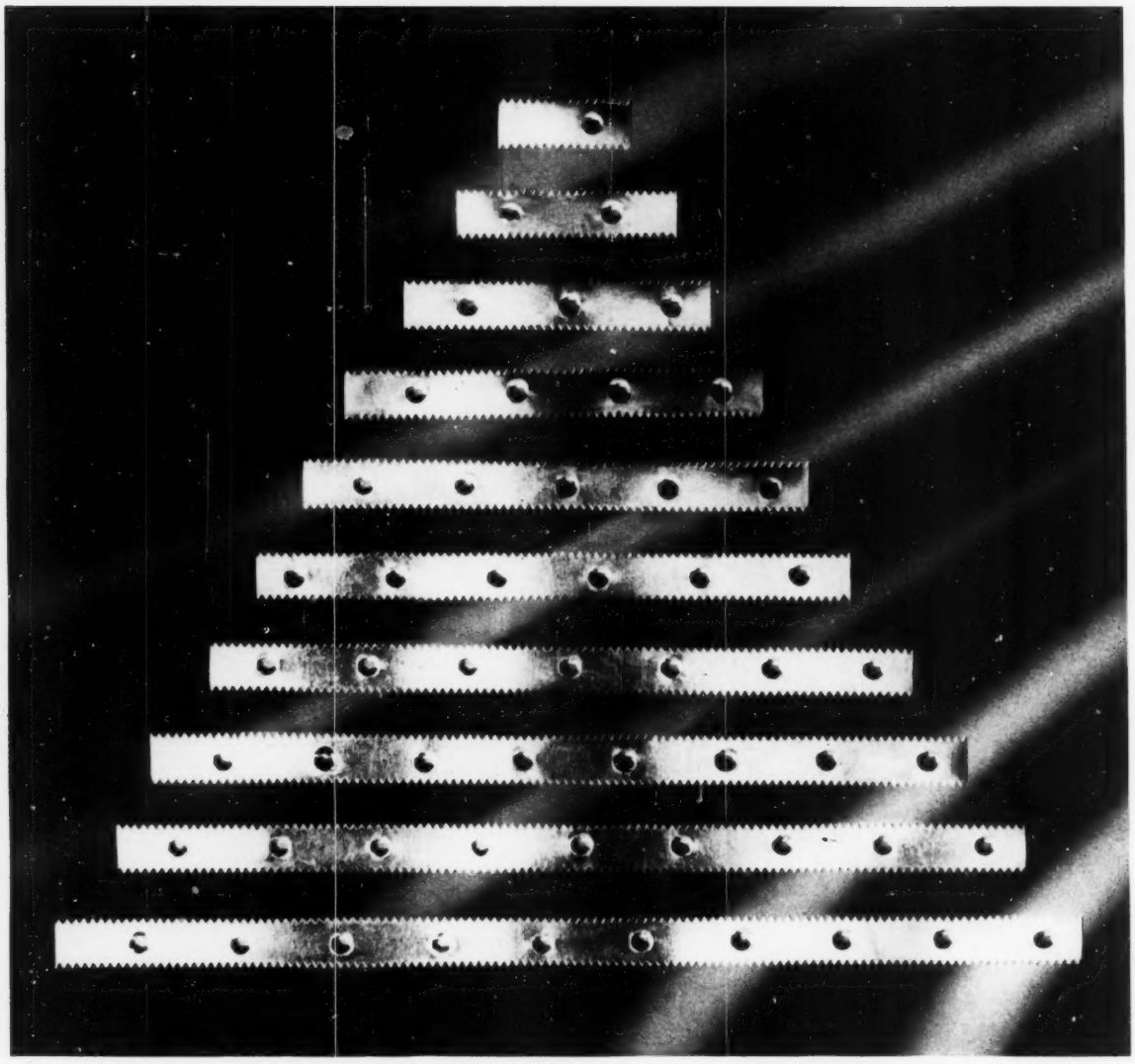


Cutter cartons make sales pyramid

Want to build your sales up to a new peak? A St. Regis® metal-edge cutter carton can sharpen the sales appeal of your package. Then watch the orders grow!

St. Regis cutter cartons are engineered to make an attractive, handy self-dispenser for your product. When your package is used over and over again, your brand name registers time after time. You get the "edge" on competition. And *only* the Folding Carton Division of St. Regis has the versatility to supply you with metal edges in such a wide variety of lengths—ranging all the way from ½" to 36".

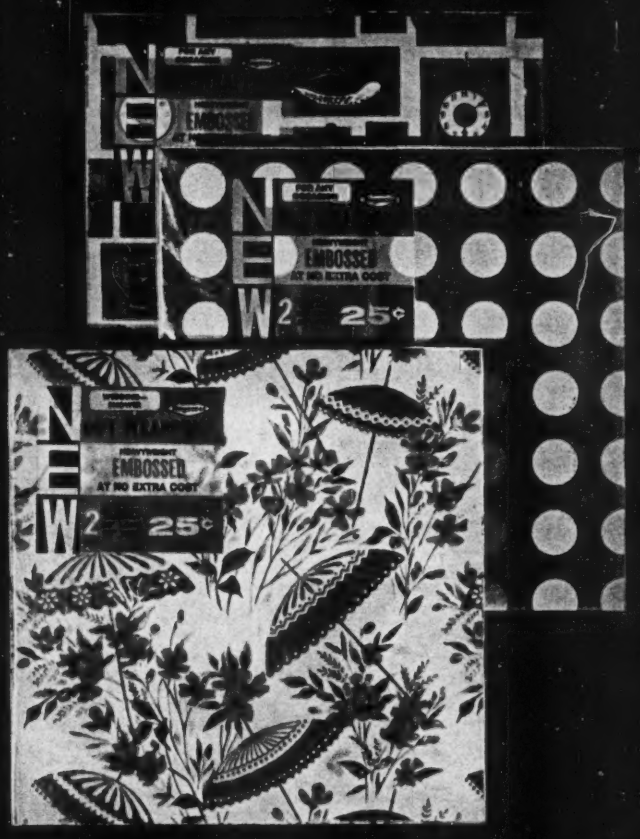
Metal-edge cutter cartons and folding boxes have been specialties of our package design engineers for years, helping to make St. Regis a leader in the folding carton field. Their imagination and experience are at your disposal.

To put real teeth into your sales, find the St. Regis plant below that's nearest you, and drop us a line today.

FOLDING CARTON DIVISION

St.Regis PAPER COMPANY

it's good business to package paper products in



These attractive Kaycrest Gift Wrappings by Papercraft Corporation are packaged in tough, crystal-clear AviSun Olefane film. Labels are beautifully flexograph-printed in white, gold and black.

...the tough new polypropylene film

Kaycrest Gift Wrapping is another of the famous paper products now being packaged in Olefane—for many good reasons, including:

LONGER PROTECTION: Films formerly used tended to break, run and leave products unprotected. Brawny Olefane doesn't become brittle or deteriorate with age. Products stay clean and saleable almost indefinitely.

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MORE FILM PER POUND. Lightest of all transparent films. Gives more square feet per pound . . . costs less to use.

Olefane is being used in new packaging applications every day—from foods to lampshades. New production facilities, now under construction, will soon be ready to meet the growing demand for this versatile new packaging film. Send for Booklet AO-100, giving complete information on Olefane.

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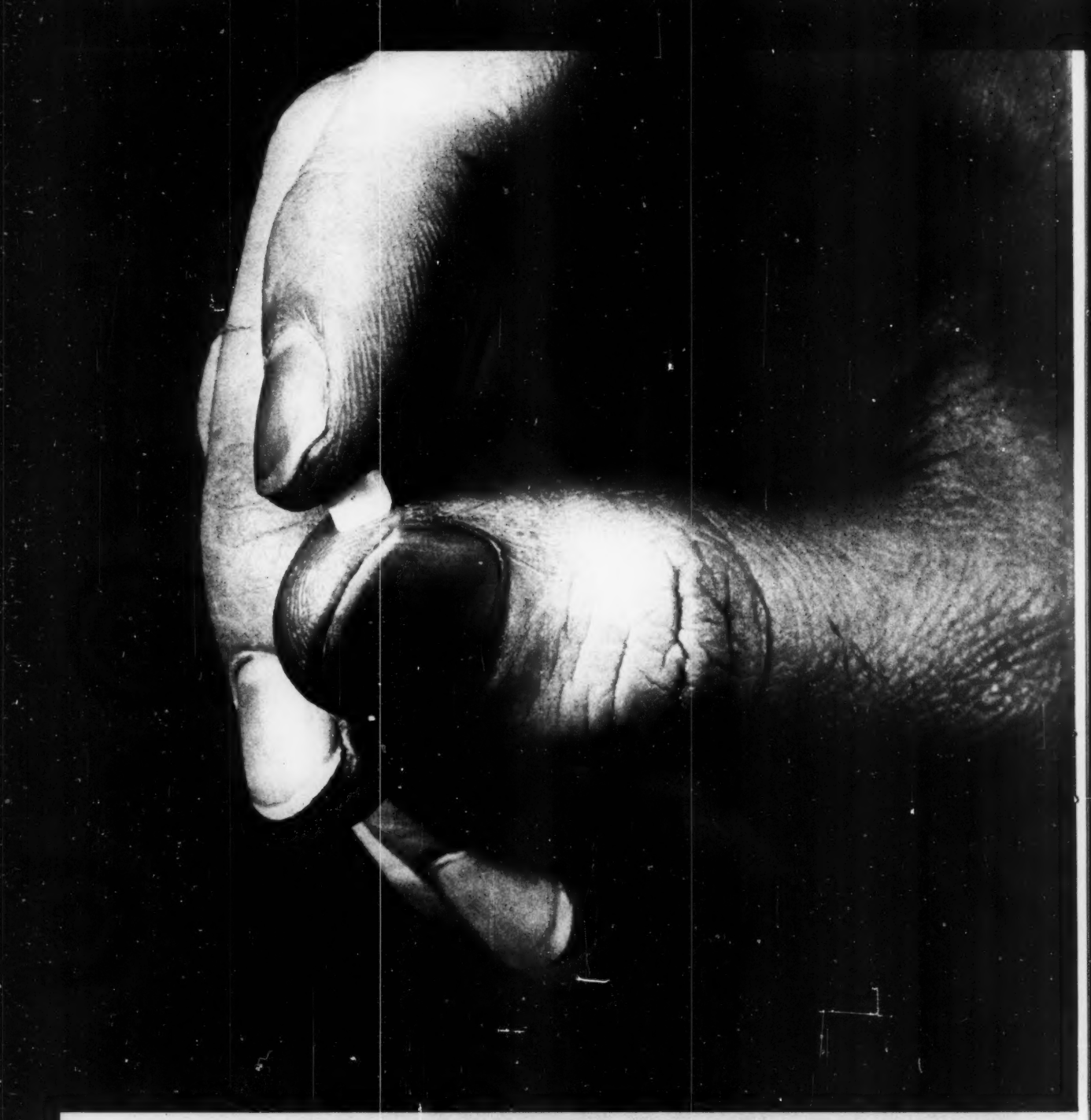

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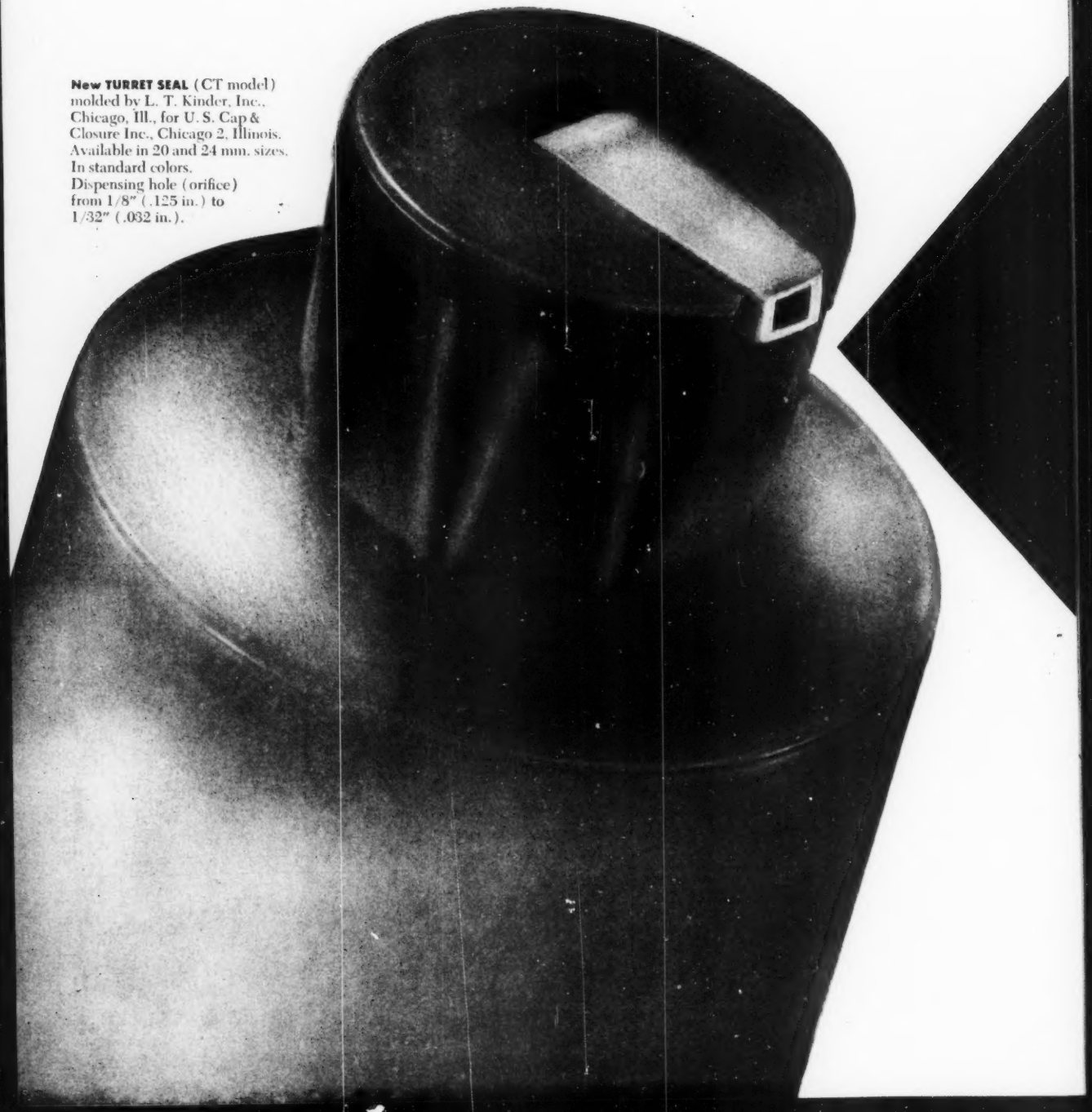
MEET THE NEW TURRET SEAL



New TURRET SEAL (CT model) molded by L. T. Kinder, Inc., Chicago, Ill., for U. S. Cap & Closure Inc., Chicago 2, Illinois. Available in 20 and 24 mm. sizes. In standard colors. Dispensing hole (orifice) from 1/8" (.125 in.) to 1/32" (.032 in.).

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The easy way to open and close a container! New in design—and BAKELITE® polyethylene makes it work!

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U.S. Cap & Closure Inc. produces this cap. Its looks are clean, simple, in harmony with today's styling. The spout folds down into a smooth, flat top, easy for the retailer to price-mark.

Simple? For the user, yes. But the designer had some tough requirements. Components had to be easily assembled, yet fit and operate precisely. They had to form a perfect seal when closed. It made sense to choose from among BAKELITE polyethylenes—offering the broadest range of mechanical and molding properties available today!

If you have a closure or packaging problem, let Union Carbide know about it. There you'll find not only the widest range of plastics, but the practical knowledge that can pay off in lower costs and improved product performance for you. Write Dept. KE-86G, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N. Y. *In Canada:* Union Carbide Limited, Toronto 12.

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WRAPPING MACHINES

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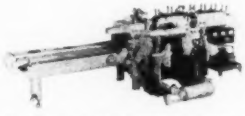
Battle Creek model 475's will soft film overwrap your thin, rectangular or irregularly shaped products at high speed

Model for 475 General Rectangular Applications



Model 475-H for Soft Irregular Products

Model 475-SN for Square Soft Items

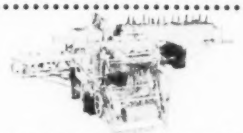
Model 475-S for Thin or Thick Items

Model 475-TS for Soft Rounded Shapes

Model 475-TT for Irregular Products

Model 475-N for Paper Napkin Overwrapping

Model 475-T for Textile Products



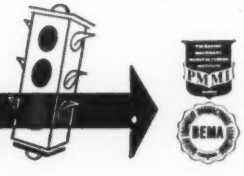
Model 475 for Rectangular Trays or Cartons

products like these can be beautifully packaged at speeds up to 75 per minute

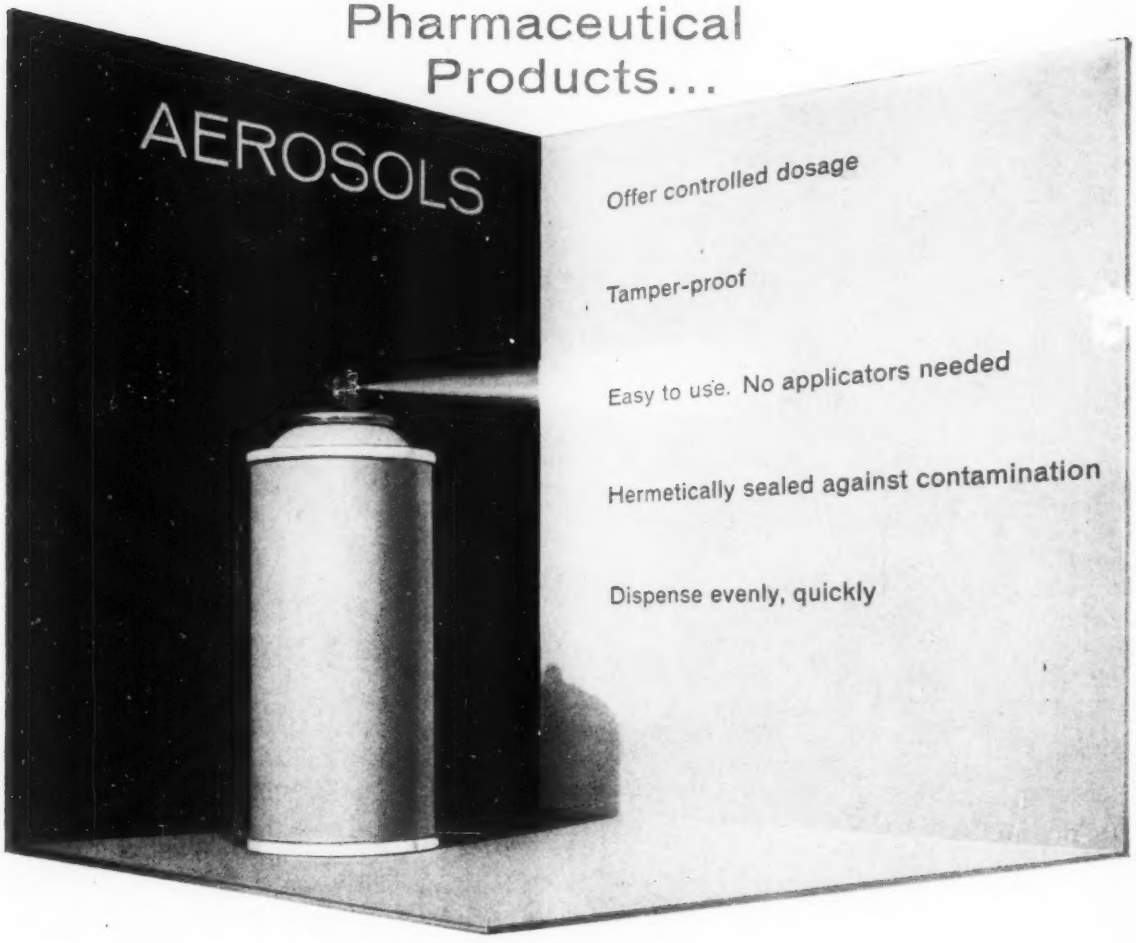
These newly developed machines have been thoroughly field tested in more than 100 installations. All machines produce attractive weld-sealed packages in polyethylene and most of the currently available plastic films besides being adaptable to films of the future. Our engineering service will help you choose from nine different Model 475's the machine best suited to your particular packaging needs. Send your inquiry in today.

Continuous Flow PACKAGING

BATTLE CREEK *packaging machines, inc.*, BATTLE CREEK, MICH.



New Look for Pharmaceutical Products...



These are just some of the reasons for the successful new look in proprietary and ethical drug packages. Aerosol packaging improves product performance . . . makes pharmaceuticals more appealing . . . easier to use. That's why many drugs which formerly went to market in conventional packages now appear in aerosol containers. *Aerosol drug sales are climbing fast—and the market potential hasn't even been scratched!*

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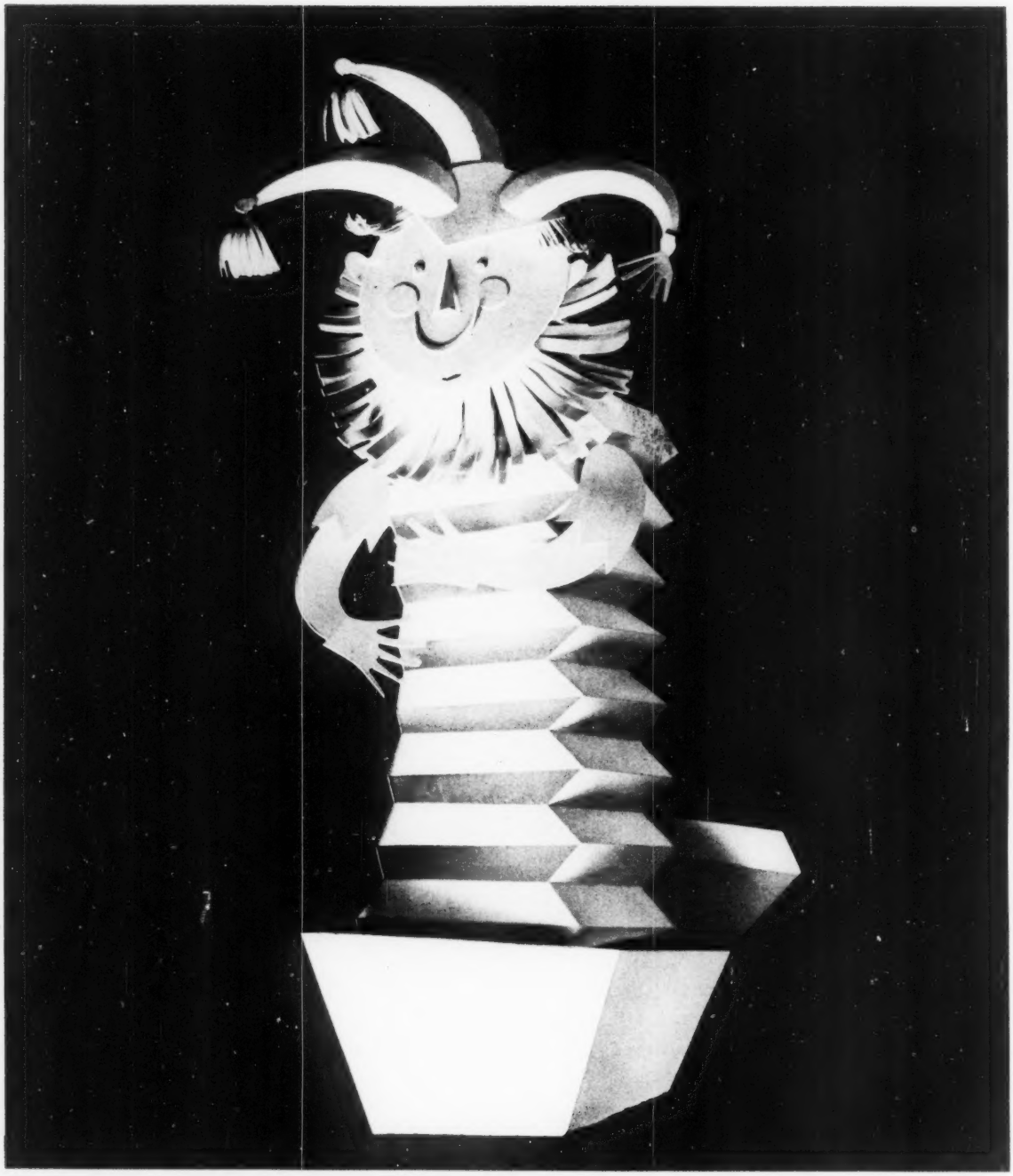

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EDITORIAL MEMO

Action on machinery standards

Building a synchronized bottling line for liquor recently, engineers from the packager and from three machinery suppliers were forced to stop other important work to spend three months adjusting differences in electrical components so that all machines in the line could be interconnected.

This appalling waste of engineering time and talent is not unusual. But it underscores the need for some definite standards in the important and growing phase of electrical engineering for packaging machinery.

Electrification of packaging machinery has grown enormously in the last few years and now utilizes up to 10% of the time spent in designing a new machine as opposed to only 3 to 4% ten years ago. New electrical and electronic devices to govern packaging actions are coming off the drawing boards at an accelerating pace and many advanced packagers are even now anticipating the programming of entire production, packaging and handling operations with automatic electronic "brains."

But, these modern marvels will create nothing except immense confusion if there is no common language by which electrical-component manufacturers, machine suppliers and packagers can understand each other. Today, even such a simple thing as a wiring diagram for the maintenance of machinery varies widely from supplier to supplier. And many electrical components are available in such a bewildering assortment of types, voltages and operating characteristics that even supplier engineers who work with such devices constantly are confused. There is no guiding hand to lay down rules for construction and use.

The remedy for this serious situation is suggested by a few far-sighted engineers from both packaging and supplier companies who have banded together to create standards under the auspices of the American Institute of Electrical Engineers. AIEE is a professional society that has made notable progress recently in solving similar problems within the machine-tool industry and the textile-machinery industry.

Now the Packaging Industry Subcommittee of AIEE's Joint Industry Committee is organized and ready for work. The subcommittee includes members of both the Packaging Institute and the Packaging Machinery Mfrs. Institute and recently demonstrated its ability and purpose by holding a first annual technical conference where it examined the problems of packaging machinery. A report of this meeting appears in this issue, *p. 204.*

Commendable as this effort is, it can be successful only if it has the understanding and support of all branches of the packaging field from the beginning. Standards have little value unless they are universally accepted and applied by the entire industry involved. This magazine will do its part by helping to keep you informed as the work progresses.

The Editors

Modern Packaging, Executive and Editorial Offices, 770 Lexington Ave., New York 21, N. Y. Teletype number: TWX-NY 1-3063. Cable address: "Breskinpub."

From Nashua's talent with paper and packaging . . .
new products that do more for you . . .

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Paper tension weakens label adhesion . . . labels pull away. Solution: Nashua's BM-3 Heat Seal Paper, newest addition to Nashua's diversified heat seal line. BM-3's extra-strength adhesive anchors labels for keeps. And Nashua's coating process leaves the printing surface undisturbed . . . for crisp, clean results. Just right for pharmaceuticals.

New BM-3 Heat Seal Paper is another example of Nashua's productive research with paper and printed packaging. Find out how Nashua can help *you* cut costs . . . improve production . . . or stimulate sales.

Write to Nashua Corporation, Dept. MP-51, 44 Franklin Street, Nashua, New Hampshire.

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Nashua talents available to you: Package Engineering • Creative Design • Paper Chemistry • Coordinated Packaging • Quality Production • Procurement Versatility

Next chapter in convenience? *Armour's Star Lite line, just being introduced, includes main-dish dehydrated foods preserved by the new freeze-dry process. Thus, entrees, meats, poultry and seafood can be stored indefinitely without refrigeration, ready to eat after a few minutes of rehydration and cooking. Although Armour's initial appeal is to campers and sportsmen, home use is an ultimate objective.*

Dehydration comes back

The stepchild of wartime necessity has suddenly become a highly respected contender in the field of convenience foods. In this metamorphosis, packaging plays a vital role

One of the surprises of the '60s is the enviable place of respectability that is being won by dehydrated foods. Once remembered with horror by everyone who ever tried wartime powdered eggs, dehydrated foods have suddenly become the most widely discussed subject in food circles. At the recent annual meeting of the Institute of Food Technologists, there was standing room only at the session devoted to dehydration.

There are important implications here not only for the food industry, but for all concerned with packaging. This may be the ultimate challenge in moisture-protective packaging at low cost.

The key word that undoubtedly has put over dehydration with the public is "instant"—instant coffee, instant tea, instant cocoa, instant potatoes, instant cereals, milk powders, soup mixes, soft-drink powders and dozens of other packaged dry products, ready in a jiffy simply by adding water—freeing the housewife from kitchen drudgery.

And as food technology continues to lick the taste problem with such new processes as freeze drying, it may not be long before shoppers will be buying instant steaks, seafoods and poultry in packages that can be stored on the home shelf indefinitely without the need for refrigeration and ready for

Dehydrated potatoes are already big

Refinements of packaging and emphasis on convenience have made dehydrated potatoes popular with consumers. Last year an estimated 125-million pounds of dehydrated potatoes were marketed. Latest Borden package is typical of consumer appeal; end-opening carton (side panel removed here for photo) is divided into two compartments by strip of polyethylene film sealed down center of foil-laminated liner—housewife thus can empty out either four servings at a time or all eight servings at once. Carton by Interstate Folding Box Co.

preparation after dunking a few minutes in water.

Enthusiastic processors are predicting freeze drying as "the greatest breakthrough in food preservation since the invention of the tin can."

All indications are that dehydration is coming back with a vengeance, changing eating habits and calling for new packaging concepts.

For this reason, a summary of the various dehydration techniques in relation to their packaging requirements seems to be urgently needed.

The boom is on

A few statistics are in order to illustrate the impressive acceptance of dehydrated foods:

- Sales of instant coffee up from 227-million 2-oz. packaged units in 1951 to more than a billion units in 1960—a gain of 434%.
- Sales of packaged non-fat dry milk for home use up from nothing in 1948 to 138-million pounds last year, with no corresponding decrease in fluid milk sales. Total non-government use of this product was 922.4 million pounds.
- Sales of dehydrated potatoes up from less than 50-million pounds in 1956 to a forecast estimate of 485-million pounds by 1965. The U. S. Dept. of Agriculture reported an increase of 5% in potato consumption last year—the first gain in several years—and credits acceptance of instant potatoes

First consumer packages *containing freeze-dried ingredients were Lipton soup mixes, with chicken chunks and mushrooms processed by this method. Same heat-sealed, laminated-foil pouches this firm uses for its entire line of soup mixes package these new products.*

as largely responsible for putting a stop to the decline in consumption of this commodity.

• An estimated $5- to $7-million business in the new freeze-dried products is forecast for the end of this year by manufacturers of equipment for this process. They point out that whereas a few years ago two or three freeze-dry systems were in operation, today 12 are in full production.

Convenience, of course, is the principal benefit of dehydrated foods—quick preparation and indefinite storage at room temperature without deterioration. Reduced weight by reducing water content means lower shipping costs. And storage without refrigeration eliminates the need of costly refrigerating equipment throughout the entire distribution cycle of such foods.

Acceptance of new freeze-dried foods will be only a matter of education, the promoters say, now that consumers have learned to accept dried milk, instant coffee and instant potatoes. Already leaders in this field are busy with educational campaigns to get food editors to try them and to demonstrate them at gatherings of food experts.

Institutional-sized cans *for Liana Foods freeze-dried shrimp are gas packed. Product is already widely used in hospitals, schools and restaurants. Dried shrimp retain original shape, regain their original pink color and texture after 20 minutes in water. And they taste like fresh-cooked shrimp.*

Processes and packaging

The packaging requirements of dehydrated foods may be easier to understand when related to the most commonly applied methods of dehydration:

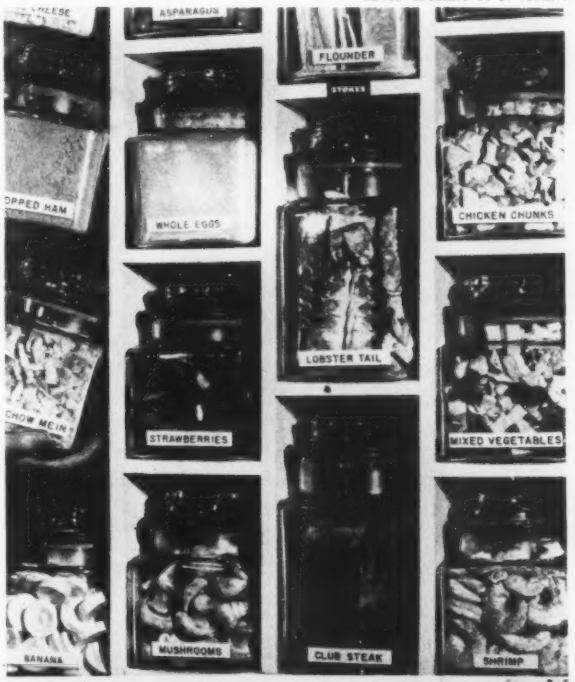
1. *Spray drying* is used for some liquids, such as milk and coffee, and for such thicker materials as soups. The liquid is sprayed into a cyclone dryer where it mixes with extremely hot air. Evaporation occurs so rapidly on the surface particles that the temperature of the product never rises high enough to cause heat damage.

2. *Atmospheric (hot-air) drying* is used principally for vegetables and fruits. Instant potatoes, onion flakes and apple slices are dehydrated by this method. The product is cut into small pieces and spread out on trays which have slat or wire bottoms. The hot air is passed over and under the trays in order to dry the product.

3. *Vacuum drying* is used for juices. The liquid is "puffed" or filled with bubbles when subjected to vacuum. The product is then dried, leaving a solid, but fragile mass of matter. This fragile mass is crushed to reduce bulk.

4. *Freeze drying*—the new process that is being regarded as the great hope for the non-refrigerated preservation of meat, poultry and seafood—is not unlike that first used for obtaining penicillin and blood plasma and used today in other drug processing. First, the food item is frozen so that the moisture in it is transformed into ice crystals. Then it is dehydrated under vacuum at low temperature. The ice "sublimates" so that the crystals pass off as a vapor without going through the intermediate liquid state. In this process the product retains its original shape and reportedly rehydrates more

PHOTO COURTESY F. J. STOKES.



Wide range *of products suitable for freeze drying is indicated by this display of laboratory samples. Because they are fragile and brittle, freeze-dried foods need the protection of a rigid package, as well as one with extremely low water-vapor transmission.*

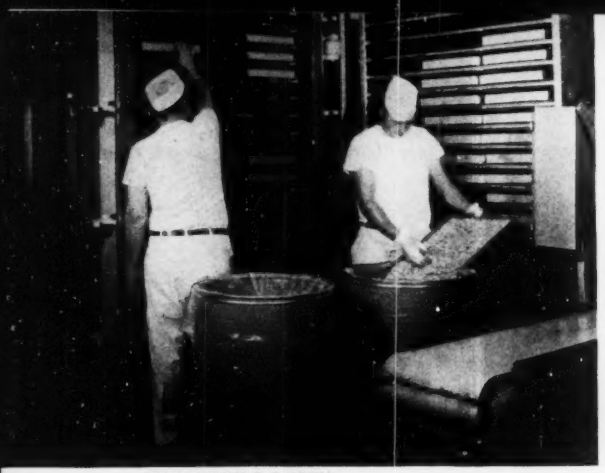


PHOTO COURTESY F. J. STOKES.

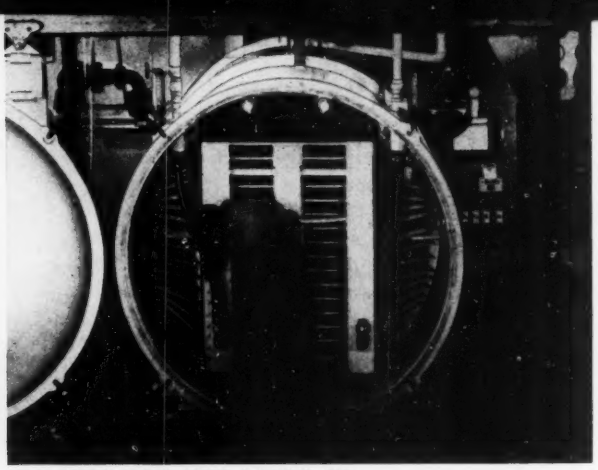


PHOTO COURTESY FOOD MACHINERY & CHEMICAL CORP.

Two types of equipment for freeze drying under vacuum

Food is first frozen so that moisture in it is transformed into ice crystals. Then it is dehydrated under vacuum at low temperature. In this process the ice "sublimates" so that the crystals pass off as vapor without going through an intermediate liquid state.

quickly and more completely. The food gives up as much as 50 to 75% of its normal weight.

5. *Dehydro freezing* deserves mention here principally to eliminate confusion of this method with dehydration. In this process, a certain amount of water is extracted from a product by heat, after which the product is frozen and must be maintained by refrigeration thereafter. Examples are General Foods "instant" baby foods which, although some moisture is removed before freezing, must be stored under refrigeration and therefore rightfully belong in the category of frozen foods.

Peak interest in dehydration today is focused on the new freeze-drying techniques. As one observer has said, major processors are poised like divers around a swimming pool waiting for the first to take the plunge and, in the next few months, these new foods will likely appear everywhere.

As for packaging, the general trend is to foil-plastic pouches enclosed in appetite-appeal cartons.

Who's involved?

The Army Quartermaster Corps has the biggest stake in freeze drying—not only because of the military essential for lightweight rations that can be quickly prepared and stored without refrigeration, but because of the promise of this new process to provide better-tasting packaged foods as a morale builder for fighting men.

"Although dehydrated foods were extensively used in Army rations overseas during World War II, acceptance was poor," says a QMC brochure, *Feeding Systems to Meet New Tactical Needs*. "Since the end of World War II, however, advances in chemical research have given impetus to a better understanding of the science of dehydration of foods. This has led to the development of products good enough now to be introduced commercially."

The first consumer packages to include freeze-dried ingredients were Thomas J. Lipton Mushroom and Chicken-Rice Soup Mixes, launched on a national scale last fall. These are packaged in the same efficient, heat-sealed, laminated-foil pouches this firm uses for its entire line of dry soup mixes. The water-vapor resistance and tight seal apparently are adequate for the planned shelf life of these products. Freeze drying has offered Lipton a means for including whole mushrooms and chicken chunks of quality flavor which, the company says, could not be produced by other dehydration methods.

Armour & Co., which demonstrated packaged freeze-dried foods for sportsmen at the American Camping Assn. meeting in Philadelphia during March, announced at a press conference in New York on May 18 that it was ready for the plunge with a new line of these products to be made available to the public for the first time this month. The products are described as being "of particular interest to all types of outdoorsmen, family campers, industrial and scientific exploring parties, youth organizations, engineering and construction crews, relief and disaster agencies."

But Armour is looking beyond this introductory phase. "We sincerely believe this development will be the beginning of a new trend in food marketing," reads Armour's statement accompanying the announcement. "It will have immediate impact in the area of preserved foods for outdoor use and in the very near future its impact will be felt in the many areas of general consumer use."

The Armour line, marketed as the Star Lite brand, includes freeze-dried pork chops, beef steaks, pre-cooked scrambled eggs, ham patty mix, chicken stew, rice and chicken dinner and "Open Hearth

Stew with Beef." The packages consist of polyester-foil-vinyl pouches, overpacked in paperboard cartons containing two to four portions. The cartons are designed with appropriate graphics that associate the products with outdoor activities.

Almost simultaneously Wilson & Co. may be out with a line of hunters' meats, after announcing that it has successfully perfected ground beef, diced beef and chicken for manufacturing purposes, and has marketed freeze-dried pork chops, boneless rib-eye steaks and meat bars. Other freeze-dried food items in development by Wilson are Swiss steak and gravy, beef slices, pot roast of beef, beef chop suey and split-pea soup with bacon. For test purposes, Wilson has packed most of these items in cans flushed with inert gas, but it is considering flexible-foil-plastic-film structures, probably in cartons.

Liana Foods of Texas, a division of United Fruit, has been selling freeze-dried shrimp in institutional-sized, gas-packed cans to hospitals, restaurants and schools, and is expected to be ready with a consumer package for supermarket selling shortly. According to suppliers working on this application, the package very likely will be a flexible pouch, possibly of paper-polyethylene-foil-polyethylene or cellophane-polyethylene-foil-polyethylene.

Swift & Co., National Dairy, General Mills, H. J. Heinz and General Foods also are among those mentioned as having deep interest in freeze drying, some of them with pilot operations.

Packaging considerations

Theoretically, a dehydrated product can be stored indefinitely if sealed in an airtight container that will keep out moisture and oxygen. The problem of protection is much more critical for some products than others, depending on desired shelf life. Potato flakes and sliced potatoes reportedly can be packaged successfully in coated folding cartons of food board with efficient seal. Protective carton overwraps may be required. Potato granules for instant mashed potatoes, on the other hand, required more complex barrier materials and this product possibly may need gas-packaging techniques.

The major protection problem for instant milk has always been elimination of moisture penetration. In overwrapping cartons of instant milk, three aspects of the wrap, therefore, must be watched very closely: (1) water-vapor transmission rate of the wrap itself, (2) efficiency of the heat seal and (3) mechanical strength of the wrap.

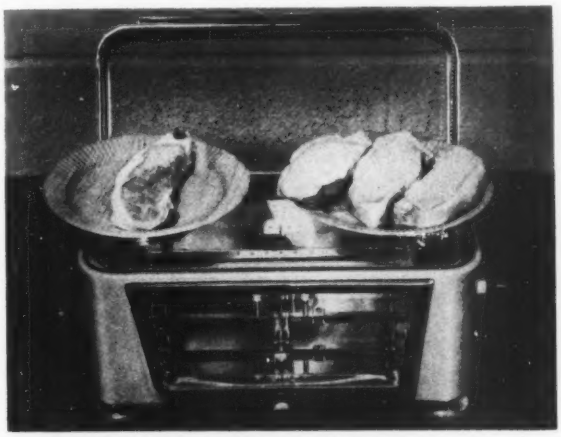
The Carnation Co.—which has had conspicuous success with dried milk—reports that 0.0035 aluminum foil in a lamination with polyethylene, waxes and paper gives very low WVTR (0.02 to 0.04 gm./24 hrs./100 sq. in. at 90% R.H. and 100 deg. F). Some wraps have a tendency to fracture at the corners of the carton and this must be overcome by adequate thicknesses of both paper and polyethylene. Therefore, another material must be provided next to the aluminum foil.

Aspects other than protection are also often a factor in packaging dehydrated foods. Carnation feels that the major consideration in choosing cartons for instant non-fat dry milk was the convenience of the pour spout at a time when competition was using glass jars. The pouring spout seemed to emphasize its "instant" nature or "pourability."

In every company, apparently, there is a continuing research program to provide packaging materials with the greatest economy.

Freeze drying is so new that the problem of consumer packaging is only beginning to be tackled. Nobody is quite sure what the long-range packaging trend will be. Some are using cans, particularly for institutional markets. Bags in cartons show promise because of easy opening and easy disposal. Some firms are market testing to find out acceptance and quantities and portions. There is a search for brand names that avoid association with the word "dehydrated," which has no popular appeal. Many questions of surface design and illustration must be settled and carefully prepared direction and promotional copy is essential.

Laboratories point out that too little is known about what actually happens to these foods once they are sealed in the package. Sealing out moisture and oxygen is only part of the problem. Indefinite storage is promised. Yet there are still questions



Freeze-dried foods *retain bulk, but lose water weight. Three freeze-dried pork chops (right) weigh no more than a single fresh pork chop (left). After preparation, freeze-dried chops regain normal weight, retain original flavor and texture, according to Armour.*

about what effect time, varying temperatures and other environmental conditions will have on them.

Chemical and physical changes take place within packages for every processed food product; they can cause rancidity, off-tastes, odors, color and texture changes. As one technologist put it, canned tomatoes stored for a year don't taste the same as those just off the canning line. And it's one thing to protect these freeze-dried foods with costly barrier materials and inert-gas-flushing techniques used by the military and another to plan efficient, economical consumer packages for supermarkets.

In shape and size, many freeze-dried products look very much as they do in their natural state—except for the color, which returns as they are rehydrated. But they are as light in weight as a dry sponge and often they are brittle.

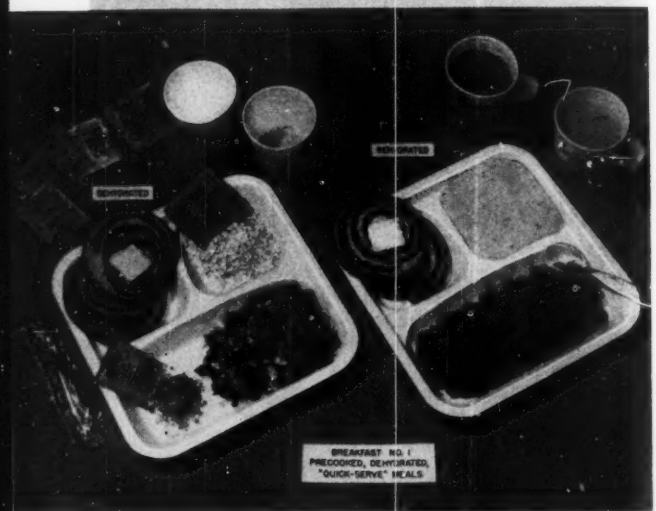
Freeze-dried shrimp, steak or asparagus, therefore, must be put in a package with a degree of rigidity to prevent crumbling, or a steak might turn out to be a rehydrated hamburger.

Strong, flexible materials must be provided that will not be punctured by sharp granular or chunky contents. If the barrier material is used as a carton overwrap, one authority points out, it would be a great advantage if the cartons could be made with rounded edges to reduce the chance of puncture from sharp corners.

If the freeze-dried product is a powder, then it must be decided whether it is to be packaged for single use or in a container for spooning or pouring out as required. If the latter, the package must be reclosable to give a degree of protection to the unused quantity after the original seal is broken, similarly to the pour spout on instant-milk cartons or the screw caps on glass jars for instant coffee.

If the product is unappetizing in appearance, as many of these foods are in their dehydrated state, then the product may have to be concealed in an opaque package. And glamorous food illustrations, like those on instant-potato and milk packages, are generally called for to tell the consumer what the product will look like when prepared for the table.

The "pouch method" of reconstituting Armour's Star Lite cooked scrambled eggs simply by pouring a cup of hot water into the pouch containing the egg square, squeezing it gently then shaking it suggests possibilities for adopting new package forms for these new freeze dried foods. It might be feasible, for example, to package some of these items in pressure-formed trays of high-density polyethylene or rigid aluminum-foil pans, if these containers could be hermetically sealed. These containers would have the advantage of offering the consumer the convenience of reconstituting the food and cooking it in the same container.



Military field rations *are turning heavily to dehydration. Preparation usually requires only adding hot water and stirring. Thanks to Quartermaster Corps research, which has helped spur commercial dehydration, these are far better-tasting foods than were available in World War II. In photo below is a typical breakfast, shown in both dehydrated and rehydrated state, consisting of beef-and-potato hash, oatmeal, orange juice, coffee and pecan roll (canned) with spread.*

The implications

The sweeping shifts in packaging forms and materials that could be brought about by this new process of food preservation can be more fully realized when it is pointed out that freeze drying can be applied to fruits, vegetables, juices, whole milk and eggs, to cooked shrimp, lobster, crabmeat and poultry, to red meats and cooked meats.

In view of the heavy investment in equipment required for freeze drying, [*Continued on page 202*]

Five can types *used in Minute Maid's search for the ultimate container for its frozen citrus concentrates. Newest is ultralight tinplate (upper left). More-costly standard tinplate has been eliminated. Largest volume presently goes into aluminum. Composite aluminum foil-paperboard can is shown with part of lid opened and raised to display paperboard instruction disk for tear-tab opening device.*

Ultralight tinplate in use

Minute Maid tests the newest can material to find relative cost, handling ease on standard equipment and shipping performance

The Minute Maid Co. is continuing a 15-year pioneering tradition by quickly adopting a new packaging material—ultralight tinplate—to package a sizable portion of its frozen orange-juice concentrate. Capable of reduction to about two-thirds of standard tinplate weight by a new "double-reducing" process, this low-cost, thinner plate was just announced last year. It is the steel industry's answer to the growing challenge of aluminum cans.

This pioneering move is the latest of many packaging innovations by Minute Maid—now a division of the Coca-Cola Co. In 1946, Minute Maid introduced frozen citrus concentrates and first adopted what is now the standard 6-oz. can. It continued to pace its industry this year by packing more than half its output in aluminum and this spring marketed a fresh orange juice in the first polyethylene-coated milk-type carton used for a citrus product.

Minute Maid's latest step is believed to provide the first large-scale market test of the ultralight tinplate can and it also will give a good comparison with aluminum and composite cans, which the company is simultaneously using.

Although the new tinplate is slightly more expensive than aluminum, Minute Maid reports it was attracted to it by a combination of cost and handling ease on existing 700-per-minute lines.

The basic economy in the new tinplate cans comes from reduction of the body material from 75 lbs. base box—previously the lightest practical tinplate can material—to as low as 45 lbs. Minute Maid is using 55-lb. bodies for its 6-oz. can and 60-lb. for the 12 oz. It is using 65- and 70-lb. ends.

The new can is not only less costly than standard tinplate, which Minute Maid has now dropped, but it is also less than aluminum with tinplate ends, which the company has also used.

Estimated cost per thousand 6-oz. all-metal cans are: standard (75 lb.) tinplate, $22; aluminum with tinplate ends, $20.50; ultralight (55 lb.) tinplate, $20.38; all aluminum, $20.

Compared with standard tinplate, per-case shipping-weight savings for the all-metal cans are 1 lb. for ultralight tinplate, 2 lbs. for aluminum with tinplate ends and 3 lbs. for all aluminum.

Suppliers of such plate as Minute Maid's 55-lb. material start with 110-lb. cold-reduced steel coated with twice as much tin as is finally required for the can. A second cold reduction halves the thickness of both steel and coating.

Supplies and Services: Ultralight tinplate cans by American Can, 100 Park Ave., New York 17; Continental Can, 100 E. 42 St., New York 17, and Crown Cork & Seal, 9300 Ashton Rd., Philadelphia 36.

FASTER

Speed of product feed—a major consideration on all packaging machines—has been a particular limitation on form-fill-seal machines, where mechanical elements have long been capable of folding and sealing pouch packages at much faster rates.

Sometimes this limitation stems from the amount, shape or consistency of the product. But even with an ideal free-flowing granular product, the length of feed from weigh buckets or gravimetric feeders to the pouch-forming section of the vertical pouch packer is a restrictive production factor. Now, a striking increase in the feed rate of granular substances has been attained with a new four-head machine which in one use achieves a speed up to 250% higher by simple, though ingenious, ball-type valves that operate accurately and volumetrically to fill the product right at the point where the pouch is formed. This valve and its controlling mechanism are similar in action to those used for many years on liquid-filling equipment. Five such units are now being used to package 1-gm. portions of International Salt Co.'s Sterling salt and $\frac{1}{5}$-gm. packets of its pepper, at a rate of 400 to 500

Vertical packer *utilizes instant feed of product and rotary heat sealers to achieve form-fill-seal speed of from 400 to 500 packets per minute. A single web of polyethylene-coated paper is slit to form the two sides of fin-type pouches, formed four up.*

Lever-actuated rods *run through hopper and filling tubes and connect with ball valves on the bottom of the tubes. Levers are activated through linkage (from left) by an adjustable cam in the machine drive.*

FEED FOR POUCHING

A new ball-valve principle, borrowed from liquid fillers, boosts production up to 250% on form-fill-seal machinery used for small packets of International salt and pepper

fin-type pouches per minute. Highest speed previously was 190 to 200 per minute.

Utilizing simple roller heat sealers for the longitudinal seals and a rotating die sealer for the transverse seals, this low-cost machine poses no mechanical problem in the forming of small-portion pouches—four at a time—from a single web of 24-lb. bleached sulfite paper coated with $\frac{1}{3}$-mil of polyethylene. But, with all forming heads operating simultaneously at 100 cycles per minute, there is an interval of only 0.6 sec. in which to introduce the product into each packet before it is finally closed. And even with the small product quantities involved in this operation, the time interval is too short for the standard volumetric- or weigh-type feeders.

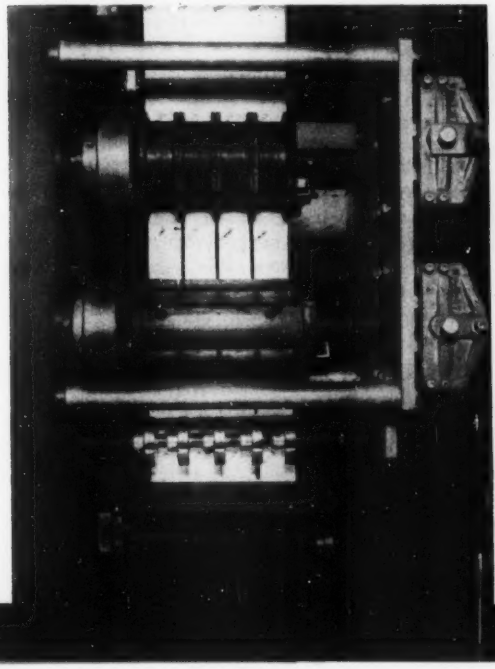
On the new machine, the technique is to keep the forming tubes, around which the photo-eye-registered paper webs are sealed into continuous strips, filled with product. At the lower end of each tube, just above the transverse die sealer, the ball valve closes off the tube. It is actuated by a reach rod that runs up through the tube to a corresponding lever mechanism on the top of the machine. Moved by a cam, the four levers open the ball valves simultaneously and permit the product to flow into the pouches for a carefully timed period. The reach rod also acts as an agitator to keep the product from bridging in the tube.

Even with this system, product characteristics make a difference in operating speed. For, while the salt can be run at 500 packets per minute, the lighter and more irregular pepper grains can be packaged at a rate of only 400 per minute.

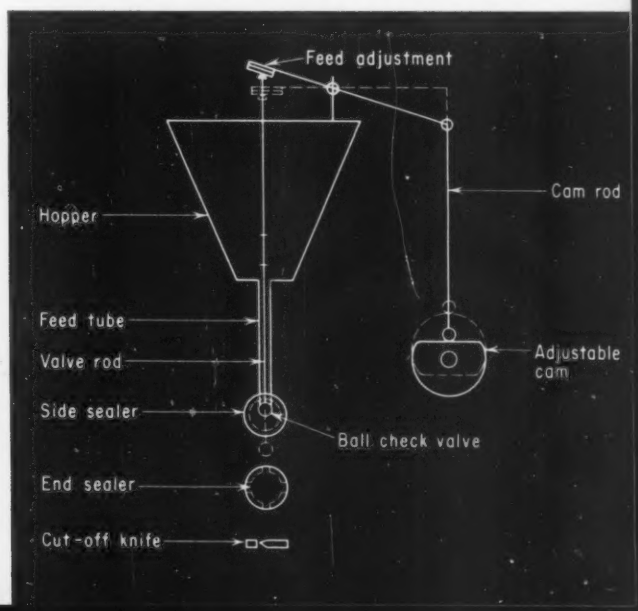
Filling adjustments can be made on the levers by increasing or decreasing the arc of travel, or by changing the adjustable [*Continued on page 198*]

SUPPLIES AND SERVICES: Vertical pouch packer by Wrap-Ade Machine Co., Clifton, N. J. Contract packaging by Cumberland Packing Co., 2 Cumberland St., Brooklyn 5.

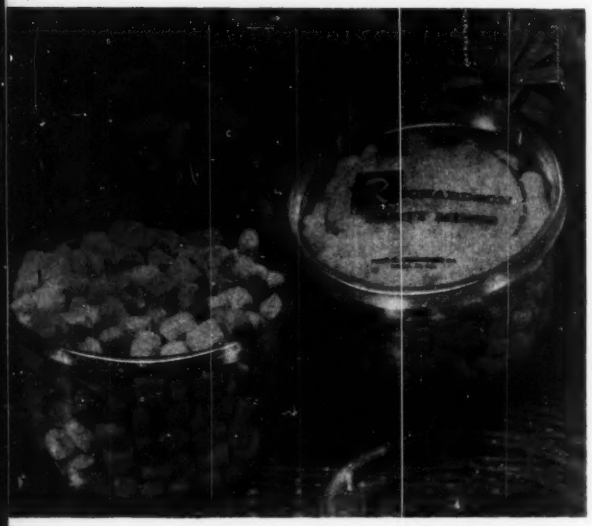
Rotary heat sealers *capable of sealing pouches at very high speeds, are fully utilized with new valve feed. Packets are divided into individual units by fast-acting reciprocating knife below bottom guide rollers.*



Ball-valve operation *(in schematic drawing) is activated when cam tilts compound lever to open four filling tubes at once. To speed filling and sealing, product is deposited just above longitudinal sealers directly at point of package formation.*



All-plastic cup container wins new markets for mints



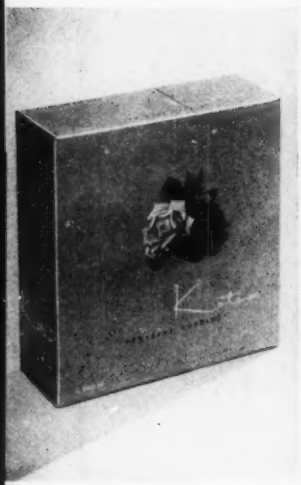
A rigid, all-plastic "non-commercial" cup container is broadening the market for after-dinner mint candies produced by the Thos D. Richardson Co., Philadelphia. Consisting of an unprinted clear-polystyrene cup with snap-on printed polyethylene closure, the new 7-oz. container not only supplements the company's cellophane bag package in self-selection stores but also has won entry into gourmet shops and other specialty outlets. Trade and consumer acceptance of the new package has been so enthusiastic, according to Richardson, that its use will be extended in the near future to include a number of other confectionery items.

When the polyethylene lid is removed, says the packager, the transparent polystyrene cup becomes a handsome "brandless" serving container that eliminates the need for busy hostesses to transfer the contents to a candy tray. When empty, the plastic container can be re-used for refrigerator storage of left-over foods.

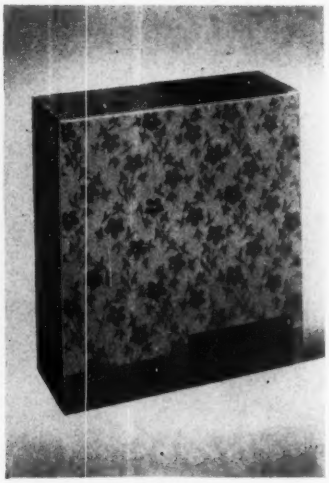
Richardson notes also that the stackability of the flat-topped cup container eases the display problems of space-crowded retailers. *Polystyrene cup and offset-printed polyethylene closure by Plastic Packaging Corp., Chicopee, Mass.*

Ideas in Action

Carton design developed through consumer research



NEW



OLD

The tastefully subdued white-rose design on the carton for Kimberly-Clark's Kotex sanitary napkins is the result of a two-phase motivation research project conducted to determine the wants and needs of consumers. It is another indication of the efforts which are now being made by packagers of highly personal products to achieve a subtle balance of good taste and information in surface design.

The independent motivation-research firm retained by Kimberly-Clark conducted depth interviews with women from all social classes and age groups to determine their reactions to the existing Kotex package design (an all-over floral pattern) and to seven proposed designs in various color combinations. In the second phase of the study, researchers explored women's reactions to the two top choices revealed in the initial interviews. The results led directly to development of the new Kotex carton design. *Research program conducted by Social Research, Inc., 145 E. Ohio St., Chicago 11. Design by Andrew P. Olsen, 919 N. Michigan Ave., Chicago.*

Sound merchandising

"Sell the sizzle" is a time-tested merchandising maxim that has been adapted to the self-selection packaging of a line of girls' audible toys by Eldon Industries, Hawthorne, Calif. The toys include a whistling tea kettle, a skillet that sizzles and a percolator that "perks" and gurgles—all as the result of battery power, without heat. Early in the planning stages, the company laid down a requirement that the sounds made by these toys be dramatized in surface package design. This has been accomplished by making the word "hear," in large, poster-style letters, the dominant design element on the windowed boxes for both the tea kettle and the skillet. The word "see" dominates the cover of the percolator box (to indicate the toy's "perking" action), with the phrase "hear it gurgle" subordinated in contrasting-color lettering.

For each product, the printed box cover features a broad polyester-film window that offers a full view of the contents. The sturdy corrugated box tray is fitted with corrugated interior platforms that hold the toy in place and cradle it against shock damage from all sides. *Design by Robert Hubbell Associates, 3923 W. Sixth St., Los Angeles 5. Printed paperboard box lid by Southern California Carton Co., South San Gabriel, Calif., using Du Pont "Mylar" for the window. Corrugated tray and platforms by Southwest Forest Industries, 2160 E. 25 St., Los Angeles 58.*

Foil glamorizes the potato

Under the acid test of consumer reaction, the simplest package-merchandising ideas often rate among the most effective. Take the case of Arrow Packing Co., Boston, which reports that it has achieved a substantial sales increase for 5-lb. bags of Idaho baking potatoes merely by adding the eye-catching appeal of gleaming aluminum foil to that of clear, high-strength polyethylene film.

Into each film bag of potatoes, the packager places one potato wrapped in foil, with baking instructions printed on the wrapper. The slight extra cost of the printed foil, says Arrow, is negligible in comparison with the bonus sales which have been generated. For maximum visual impact, the foil-wrapped potato is positioned near the top of the twist-tied bag, directly under its forward-facing panel.

An over-all mesh pattern printed on the tough film bag is calculated to add to package appeal without detracting from product visibility. Arrow credits the clarity of the low-density polyethylene film used in this application with helping to improve potato sales by providing an effective showcase for the product. *Film bag by Package Printing Co., West Springfield, Mass., using Du Pont "2-in-1" polyethylene.*

ULTRASONICS:

Three years ago a packaging show exhibit first demonstrated that aluminum foil could be sealed by bombardment with inaudible sound waves—without coatings, without adhesives, with almost no heat. Later it was shown that the same "heatless" sealing could be applied to plastics. The apparent advantages of this simple ultrasonic technique have aroused wide interest in the packaging field and no less than eight companies are now producing, or preparing to produce, equipment for it. Yet very few packages are being commercially sealed this way today. What's holding it up? What are the problems and the prospects?

Toothpaste tubes that cannot leak. Film bags and pouches that will not split at the seals. And aluminum foil containers that are more tightly sealed than a standard rigid can. These—and many more—are the exciting packaging possibilities of a little-known electronic technique called ultrasonic sealing that employs high-speed vibration to make a true welded bond between thin metals or plastic films without the necessity for the use of adhesives, coatings or conventional heat.

As yet, the uses cited above are strictly in the development stage and it may be some time before they become commercial. But developments in ultrasonics are so rapid today that they are measured in months rather than years. And engineers in at least eight electronics companies are now working hard, in collaboration with packaging engineers, to solve the difficult problems of techniques and mechanics that have so far barred commercial use.

However, the benefits of this silent, "heatless" system appear to far outweigh the difficulties:

1. *Low heat.* The infinitesimal amount of heat created by the ultrasonic tool at point of contact with metal or plastic film is dissipated almost instantly and will not affect delicate products or thermoplastic films, even the new shrinkable materials.

2. *Positive bond.* The seam achieved by ultrasonic vibration is an actual weld that intermingles molecules from the two film or foil surfaces and is almost always stronger than the material itself. It can be used on materials that are difficult or impossible to seal with conventional techniques. Also, ultrasonic vibrations actually clean the surfaces at the point of seal and thus can weld a seam through product contamination. Product contamination would, of course, prevent effective sealing by any of the conventional heat techniques.

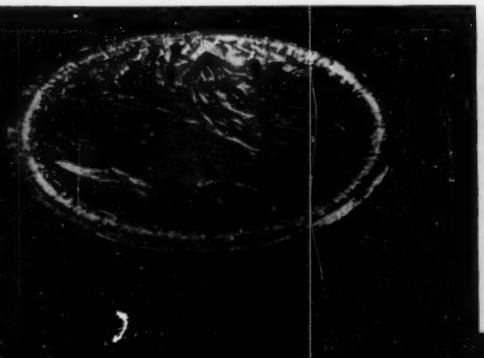
3. *Potential low cost.* While an ultrasonic seal,

Demonstration packages indicate what can be done

Foil pan and cover are hermetically sealed without coatings by use of an ultrasonic tool.

Pouches of foil in various shapes can be tightly welded to contain tablets and other small products.

PHOTOS COURTESY GULTON.



WHEN?

Knotty problems in techniques and mechanics are yielding to major efforts, by skilled electronics engineers, who hope soon to make this soundless, 'heatless' method of sealing foils and films available to all packagers

inch for inch, now costs almost twice that of a conventional heat seal, it obviates the expense of coatings and adhesives. Thus, if the price of equipment is reduced by mass manufacture, the high-frequency sound technique may produce substantial savings for the user.

Such potential advantages have encouraged a large toothpaste manufacturer to weld the bottom seam on aluminum tubes experimentally with ultrasonic energy, forming a bond that cannot be broken during the entire period of the tube's use.

A major manufacturer of explosives is test packing dynamite in hermetic polyester film bags that are seamed with the "noiseless sound waves" because they create no heat during the packaging operation and because they form a strong seal which is impervious to moisture.

And a long list of food packagers is said to be waiting for a machine, now under development by an electronics manufacturer, which will weld an aluminum foil lid to a foil pan in such a way that nothing can penetrate the seam.

How it's done

Before discussing how these goals are being approached, latest methods of generating and applying ultrasonic sound waves should be outlined, minimizing as far as possible the sharp differences of opinion between proponents of various systems.

Ultrasonic seals are created by high-frequency sound waves above 20,000 cycles per second (which is the audible limit) and generally run from 20,000 to 50,000 cycles for the type of system applicable to packaging. These sound waves are converted to mechanical vibration and the sealing process is performed when two pieces of foil or film are compressed between a steel anvil and the vibrating ultrasonic tool, which "hammers" or "rubs" the packaging materials with high-frequency strokes.

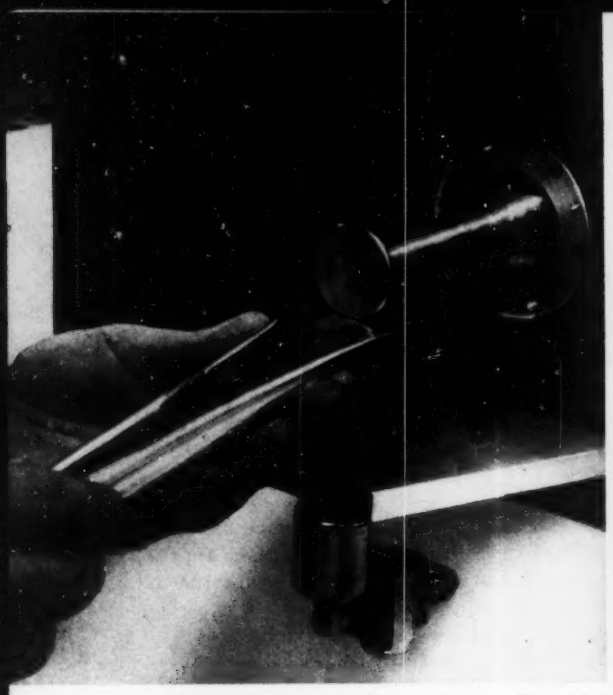
In this system, the key element is a device called a transducer. Originally, transducers were made from such natural crystals as quartz, but now they are constructed from more efficient synthetic ceramic crystals of lead zirconate titanate or barium titanate, which have molecules oriented in one direction like their natural counterparts. When excited by an alternating current, the crystals expand and contract rapidly (a phenomenon known as a piezo-electric effect), thus converting the electrical impulses into mechanical vibration. Most manufacturers are working with this type of system today because it converts up to 90% of the electrical input into usable mechanical vibrations.

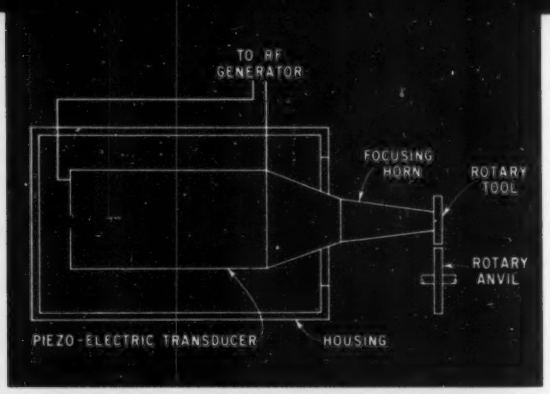
But there are also magneto-strictive transducers, which resemble an electromagnet and consist of a coil-wound core of laminated nickel strips that expands and contracts under the influence of an alternating current in the coil. While not so efficient as a piezo-electric system (because it converts only 30 to 50% of the input current) and more expensive to produce, the magneto-strictive transducer can be driven harder to accommodate larger sealing

with ultrasonically sealed foil and plastics

Polyester film without coating is ultrasonically sealed through liquid solvents, as in this pouch.

Films that can be welded by "heatless" technique include (left to right) polyethylene, fluorocarbon, polyester.





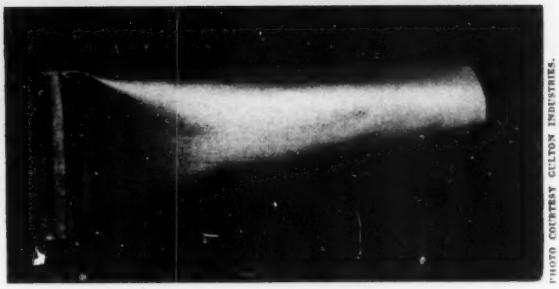


PHOTO COURTESY GULTON INDUSTRIES.

Aluminum tubes *are being experimentally welded by a major packager of toothpaste. The rotary unit, employing a piezo-electric transducer (diagram), achieves a much tighter seal at the base of the tube than is possible with conventional crimping. Operating with a rubbing or shear-wave action, this machine works in any position and in actual production will be coupled with an automatic feed.*

surfaces (such as would be used in many types of packaging) and does not cost much more to operate with the small amount of current (300 watts) used in such applications, according to two pioneering manufacturers of ultrasonic equipment.

The transducer is supplied with current by a radio-frequency generator, an electronic device that converts 60-cycle house current to the desired ultrasonic frequency. Ultrasonic vibrations from the transducer are then fed through a focusing horn or "transformer." This is the working tool, which is made from solid steel and is fastened to the crystal transducer with an epoxy adhesive. The design of this horn is critical and is still the subject of a great deal of research. Some horns are evenly tapered, others are constructed with a complex exponential curve. But regardless of design, the end result is to focus and concentrate the vibration, which is about 0.001 in. in length, at the point of the tool, which may range from $\frac{1}{16}$ to $\frac{1}{2}$ in. in diameter. The force concentrated at this point can be built up to 1,000 lbs. per square inch.

When a material is drawn under this tool, the impact produces a seal with the same width as the tool diameter. Whether this seal is effected by a mechanical mixing of molecules or by the tiny amount of heat generated by molecular friction is still subject to controversy.

It has been demonstrated that aluminum foil can be successfully sealed with sound waves. The method utilizes a vibration that is parallel to the metal sheet. This "rubbing" motion, called a shear wave, has enabled ultrasonic foil sealers to be built in the form of a rotating wheel and has led to commercial use of this technique in foil rolling mills for splicing webs.*

But only recently it has been revealed that plastic films and sheets, too, can be sealed ultrasonically if the vibratory motion is kept perpendicular to the material, thus acting as a compression or "hammering" wave. Polyester films, for some unknown reason, can be sealed with either a compression or shear wave—a unique fact that may make this film the first plastic material in the packaging field to be sealed ultrasonically. Ultrasonic sealing is also particularly effective with such combination packaging materials as extrusion-coated papers, where the vibrations reach through the inert layer of the web to weld the plastic material.

With the problems of technique and materials fairly well defined, the major unresolved area up until the present time has been that of mechanics. Here, too, much progress is being made.

New mechanical devices

The chief problem in machine design is—strangely enough—heat. While the high-pitched impact of the tool itself creates almost no heat, the transducer is a veritable heating plant, particularly

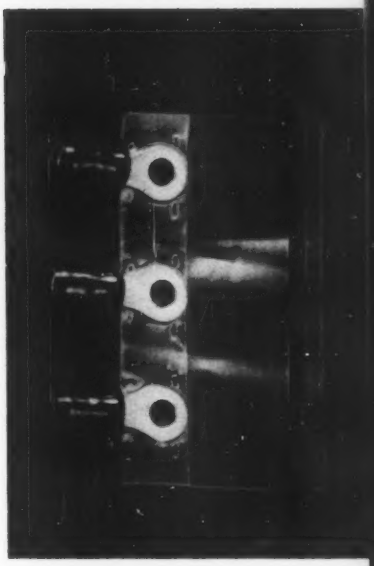
* See "Ultrasonic Sealing of Foil," p. 129, this issue.

those of the crystal type. Unless this heat is removed, it can raise the temperature of the tool, disturb the frequency of vibration and make the ultrasonic equipment virtually unusable. Various methods of cooling the transducer with air, water or transformer oil are now being developed which, it is hoped, may solve this problem.

The pressure exerted on a film between the tool and the anvil is also a critical factor, according to some authorities, and several systems are under design to keep this factor constant despite minor variations that may exist in web thickness.

Lately, much research has also been done on the design of the anvils against which the hardened-steel tools strike. It now appears that these devices, regardless of the tool used, must be constructed of hardened steel in the form of a wheel to prevent localized cutting or rutting. Also under design are various automatic feed devices to be attached to the anvil that will facilitate continuous seaming of aluminum foils and plastics materials.

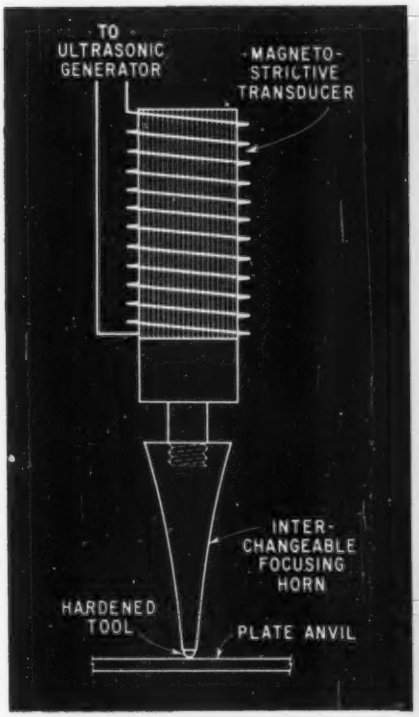
There are also numerous ideas for grouping

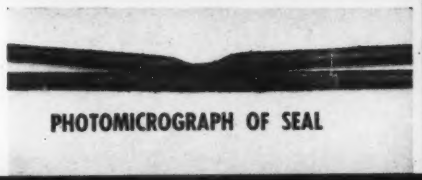


Strip package *of electrical connectors is formed with facing ribbons of polypropylene film, welded ultrasonically to hold the items in position. The strips are wound in reels for subsequent automatic assembly. This type of package is already in commercial use.*

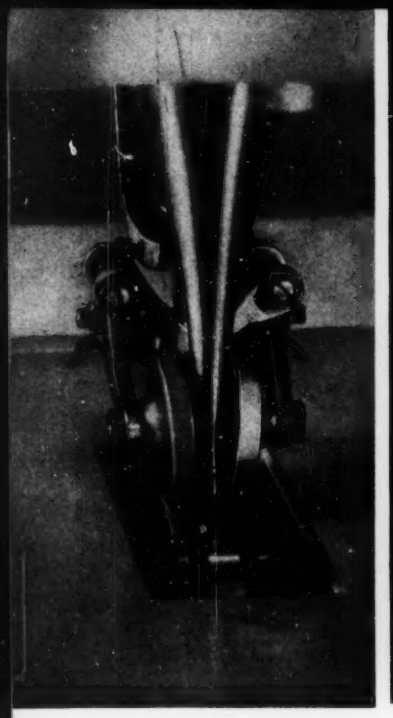
Bearings in oil *are sealed on an ultrasonic unit that utilizes a magneto-strictive transducer (diagram) with a compression-wave action. It welds a tight seal right through the lubricant. The film employed in this experimental operation is 5-mil polyester. Note the complete weld as revealed in a photomicrograph of the seal area (lower left).*

PHOTO COURTESY ULTRA SONIC SEAL.





PHOTOMICROGRAPH OF SEAL



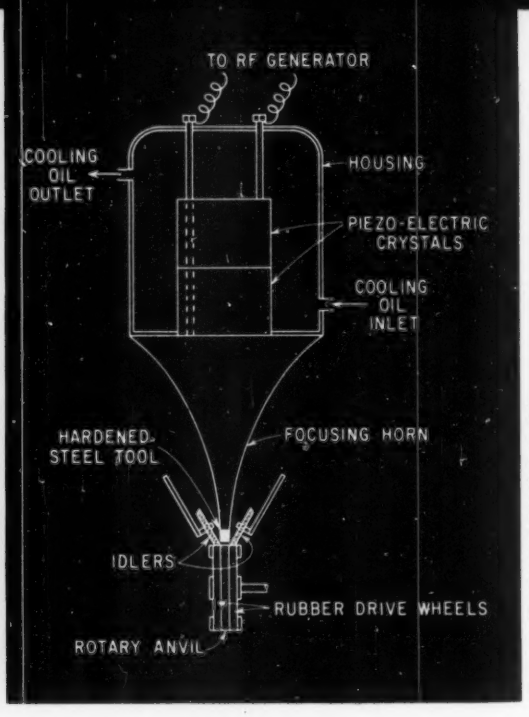


PHOTO COURTESY MAYFLOWER ELECTRONIC DEVICES.

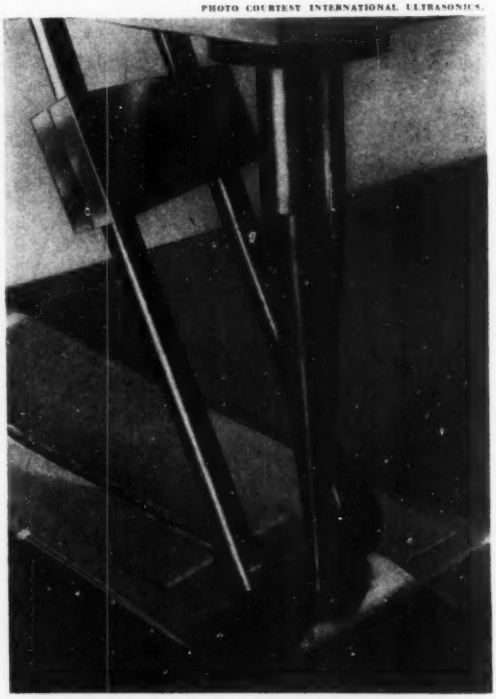
Compact new sealer, *resembling a sewing machine, has an automatic feed and utilizes an oil-cooled crystal transducer (diagram). This head could serve as the basis for a packaging machine. To concentrate energy, focusing horn is designed with a complex exponential curve.*

needle-nosed tools to speed sealing. Short bar-type sealers up to 2 in. wide are said to have been used commercially in non-packaging applications and wider sealers are under development that are similar in appearance to conventional heat sealers. The problem of developing the latter is formidable since, as one authority puts it, obtaining an even distribution of ultrasonic impulses throughout a bar is at least as difficult as providing uniform temperature for the bars used to heat seal sensitive plastic films. Yet, at least two manufacturers of the equipment expect to provide just such an ultrasonic device before the end of the year.

Even though these advanced methods are still under development, ultrasonic sealing of packaging materials has made considerable progress recently in its general scope and technique.

Linear sealing speeds on thin foils and plastic films have been greatly improved and some suppliers now claim outputs up to 200 ft. per minute. Even very thick sheet materials are said to be handled at 20 ft. per minute. Good laboratory-scale seals have been made with hand or prototype machine equipment on virtually every type of plastic film commonly used in the packaging field, including polyethylene, polypropylene and polyethylene-coated kraft paper. On the latter material, one ultrasonic supplier claims to have produced $\frac{1}{16}$-in. heatless seams with the [*Continued on page 205*]

PHOTO COURTESY INTERNATIONAL ULTRASONICS.



Automatic feed *on another sewing-machine-type unit is combined with a slim, tapered horn shown welding two strips of polyester film. Like most others, this has a roller anvil to prevent localized pitting.*

Dual design

In a program that builds new sales for Boyer household chemicals, the family look serves for a basic line, while 'custom' labels identify specialty items

Two seemingly irreconcilable design concepts—the family look and distinctive "custom" labeling—have been incorporated in a package-redesign program that is giving new merchandising life to the household-chemical products of Boyer Chemical Co., Evanston, Ill. The principle is one that can be applied by any broad-line packager: to unify a wide range of loosely related products while giving stand-out shelf impact to specialty items.

Like many diversified packagers, 60-year-old Boyer Chemical (20 employees) had been adding new products without much regard to label unity or changing marketing requirements. The result, says the firm, was a hodgepodge of unrelated and cluttered package designs that blunted the values of brand identity in modern self-selection outlets and did not reflect continuing product improvement.

In light of these problems, Boyer called in an independent designer to evolve a new label look for the metal and fibre cans in which its products are packaged. A decision was made to differentiate sharply between the packager's bread-and-butter line of general-purpose compounds and its specialty chemicals, while maintaining a readily identifiable graphic link to insure over-all brand identity.

To meet this requirement, two separate design approaches have been developed. The basic product line (polishes and cleaners, paint specialties, oils, chemical and plumbing specialties, insecticides and aerosols) is identified by a crisp family-look label face whose color and design elements are consistent regardless of container shape or size.

Arrayed vertically against a gray background are three rounded-rectangular panels containing pertinent product data. The brilliant red top panel carries the packager's logo—the Boyer name in reverse-white lower-case letters against black. The center panel (black on white) tells the contents and the lower panel (black on yellow) offers use suggestions. Additional data appear on the back.

The Boyer logo is the sole identifying link between this new surface design and those for specialty items. No two designs are alike on the containers for these products. However, each "custom-made" design features a graphic device that symbolizes product action. The label for drain-pipe solvent, for example, shows an outline illustration of a drain pipe. Overprinted copy that follows the contours of the pipe enhances the visual effect. The label for Enzivator—for reactivating sluggish septic tanks—features free-form symbols and rising bubbles that suggest a frothing action.

Boyer cites stepped-up national sales as proof of effectiveness of its two-in-one redesign program.

SUPPLIES AND SERVICES: Redesign by Painter, Teague & Petertil, 230 N. Michigan Ave., Chicago 1.

Family identity *strengthens mass-display impact and brand remembrance of Boyer's newly labeled basic line of general-purpose household chemicals. Three vertical color panels on the face of each container give vital product data at a glance.*

Custom designs *distinguish specialty items from each other and from the packager's basic line, with the Boyer logo serving as a link for over-all brand identity. Graphic devices add shelf appeal and symbolize the action of the individual products.*

SUCCESS STORY NO. 6 OF A SERIES

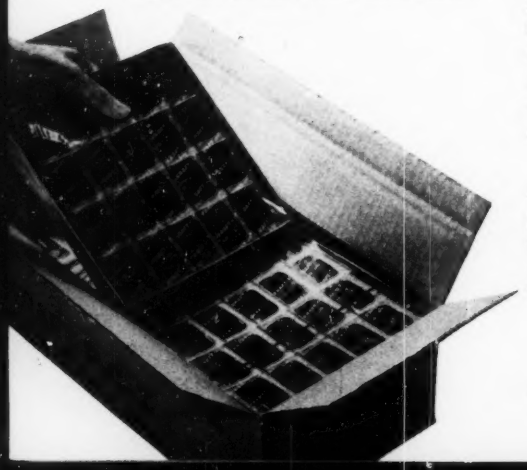
KRAFT'S PORTION CONTROL

Sensing the need of volume-feeding operators for a less-costly, less-wasteful substitute for hand-filled paper cups to serve jellies and other condiments, this pioneer among convenience packagers successfully combined a quality product, sealed vinyl containers, its own high-speed, automatic equipment and smart promotion to establish continuing dominance in the market it first visualized.

Today's travelers, restaurant patrons and hospital patients are so thoroughly accustomed to having their jellies and other condiments conveniently served in sealed, single-unit containers that these tiny packages would seem to have been a logical part of the institutional feeding scene forever. Actually, the concept of pre-packaged portion-control servings is less than 10 years old. And the Kraft Foods Div. of National Dairy Products Corp., Chicago, which pioneered the idea and leads in both sales and product variety, invested heavily before its plastic unit package was perfected and accepted.

There is more to a good new packaging concept than simply a good idea. Too often packaging innovators watch their hard-won brand leadership siphoned off by imitators with bigger advertising budgets or more efficient manufacturing facilities. Not so with Kraft and its PC (for "Portion Control") package. Through aggressive promotion and the constant improvement of production techniques it created, Kraft has maintained a commanding lead in the fast-growing single-service food market, estimated today to total more than a half-million public and private establishments. The Kraft package itself, consisting of a semi-rigid, translucent, unplasticized vinyl cup with heat-sealed cover of imprinted vinyl film, was sufficiently advanced that it has since needed only minor changes.

Chipboard trays, *each holding 20 Portion Control units, are packed 10 to a shipping carton for easy removal and use of the the single-service portions by public and private volume-feeding establishments.*



The PC idea was formed in the marketing climate of the early 1950s. Kraft had been enthusiastic about portion control since the marked success of its first such entry, pre-sliced cheese. By 1952, application of the principle to institutional servings of jams and jellies appeared to have equal sales appeal. With costs soaring, operators of volume-feeding establishments were searching for opportunities to reduce labor and waste. Bulk condiments were still ladled out into small paper soufflé cups which were discarded after serving, whether or not they had been touched. Further, a single serving kept tightly sealed until used was more sanitary and spoilage retardant.

For two reasons, Kraft realized that the package would be fully as significant as the product itself: (1) Since the company pays premium prices for top-quality fruits and other raw materials, product protection was as big a packaging factor as user convenience and (2) the paper cup was unsuitable for high-speed filling and closing. Therefore, its PC package had to be machinable, protective under a

variety of shipping and storage conditions, appropriate for many kinds of products, attractive on the plate and low in cost.

Even though PC was initially designed for a limited line of jams and jellies, Kraft evaluated many containers and packaging materials in anticipation of a variety of products. Today the seven flavors of jams and jellies have been joined by 20 other condiments, including catsup, mustard and a variety of dressings and sauces.

Despite PC's clear-cut advantages to volume feeders, such a unique idea demanded strong selling. The main objection was, ironically, cost. A #10 can holding approximately 96 oz. of product yielded 192 half-ounce servings. The same number of PC units costs more per serving. But the total hidden costs of labor and waste were not so

evident as the direct amount-of-product-per-dollar comparison. However, progressive restaurateurs grasped the cost-saving possibilities immediately. Others reacted more slowly. So Kraft merchandised the new concept vigorously with trade advertising, educational mailing pieces and personal demonstrations by its sales staff.

Demand grew. By 1955 competitors were using foil, plastic or paper cups, squeeze pouches and other types of single-service packaging. Kraft's own sales reportedly have grown each year, however, as its competition helps to underscore the value of the concept.

From an independent designer, Jack Marshall, who conceived the all-plastic PC package and the machinery, Kraft bought the patents, retained him as a consultant for a time and refined his ideas. A serrated edge has been added to the cover for easier opening and the almost colorless embossing changed to one- or two-color printing.

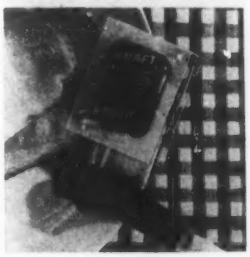
Kraft still considers its production details highly competitive. However, as early as April, 1952, when MODERN PACKAGING first reported on this development, Kraft's continuous machinery was forming and filling these containers from sheets 10 units wide and speed then was reported as high as 300 a minute. Kraft slits roll-stock vinyl to the desired width, depending on product, and imprints the cover film. All further packaging steps are handled by a single machine in each of the five Kraft plants where PC packages are produced. Sheet vinyl for the cups is fed, warmed and air blown into multicavity molds, product is filled and the cover material is heat sealed. Cups are loaded in chipboard trays and packed in shipping cases, all automatically.

With its PC package, Kraft has followed the classic formula: visualize a new market, create for it a good product and package, then add efficient production and powerful merchandising support. PC clearly qualifies as a remarkable *Success Story*.

SUPPLIES AND SERVICES: Vinyl sheet and film by Union Carbide's Plastics Div., 270 Park Ave., New York 17; Firestone Plastics Co., Pottstown, Pa., and Goodyear Tire & Rubber's Chemical Div., Akron 16, O.

THIS MONTH'S COVER

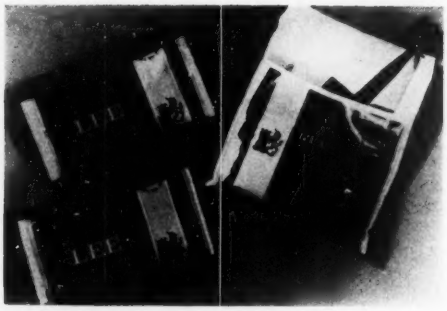
MODERN PACKAGING



The table-rightness of Kraft's Portion Control package that quickly brought it acceptance in a half-million restaurants is caught in this scene which was composed and photographed for MODERN PACKAGING'S *cover by* RAY CICERO.

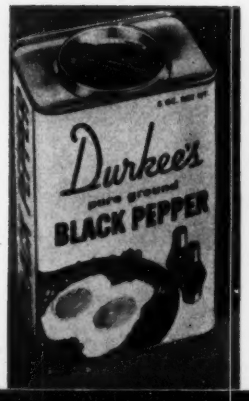
PACKAGING PAGEANT

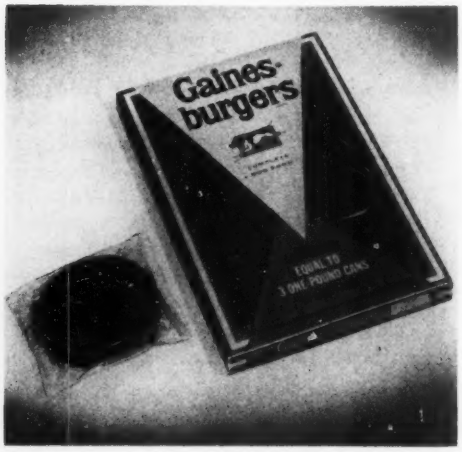
1 Significant of the times, perhaps, is the interest the Hershey Chocolate Corp.—long noted for its resistance to change in package graphics—is taking in design modernization. Examples are its 10- and 15-cent packages of Hershey's Milk Chocolate Covered Candy-Coated Almonds, reportedly redesigned to win shelf attention against competitive products and to gain more prominence in automatic vending machines. The well-known Hershey lettering has been retained to provide instant recognition and is arranged around an almond symbol in the center. However, the familiar white or silver on maroon coloring has given way to green with a brown insignia. The multicolored candy coatings are visible through the transparent cellophane bag. Design, Mel Richman Design Associates, Bala-Cynwyd, Pa.



2 Increased sales of its pipe tobacco are attributed by the Lee Tobacco Co. to new, convenient pouch packages recently adopted for three different blends. Two ounces of tobacco are packaged in each pouch which measures 3 by 6 in., small enough to fit easily into suit or coat pockets. Former rigid containers necessitated transferring the tobacco into personal carrying pouches. Made of durable 3-mil polyethylene, the pouch is flexographically printed in three colors, which vary according to tobacco type. Basic colors are black and white, with gold on the "Gold Ribbon" blend, green on the "Green Ribbon" blend and silver on the "Silver Ribbon" blend. The company's "coat-of-arms" trademark is prominently featured in the design. Pouches, Dow Chemical's Dobeckmun Co., Cleveland, Ohio.

3 Design of Borden's Starlac Instant Nonfat Dry Milk carton, in a new large size containing six 1-qt. envelopes, has been changed to identify this package more closely with the Borden Starlac line. Printed in full color, it carries the same oval motif





seen on other Borden packages, as a background for illustrations of a glass of Starlač with cookies on one carton (see photo); an apple pie, a toasted sandwich or a piece of chocolate cake on others. Side panels are used for recipe suggestions. Made of bleached board and gravure printed in five colors, the carton is automatically formed, filled and sealed. Carton, Riegel Paper Corp., New York, using the company's Foldcote board. Form-fill-seal unit, Riegel's Bartelt Engineering Co., Rockford, Ill.

4 Durkee Famous Foods now has a versatile spice-can closure—a package improvement always high on the list of "wants" by the housewife. Introduced on a new 8-oz. can for black pepper, the closure is molded of high-density polyethylene. It operates like a dial and turns to "sift," "pour" or "closed" positions. The easy-turning dial is aimed at ending a common homemaker irritation—broken fingernails from attempts to open closures on old-style spice cans. The enthusiasm of housewives during test marketing has resulted in present distribution of the new package on a national basis. Container and closure, J. L. Clark Mfg. Co., Rockford, Ill.

5 A new convenience package for dog owners is General Foods' new container for Gaines-burgers—six individually wrapped patties of dog food put up in a window carton. (See "Convenience Is King," MODERN PACKAGING, Nov., 1960, p. 93.) Each patty, in a duplex pouch made of a grease-resistant type of cellophane with heat-sealed ends, contains a quantity sufficient for a single meal for the dog. The package does not require refrigeration. The cellophane-windowed carton is colorfully printed in red, blue, yellow, black and reverse white. Nutritive data, along with colorful illustrations, appear on the back panel. Carton, American Can's Marathon Div., Menasha, Wis. K-202 cellophane, Du Pont, Wilmington 98, Del. Wrapping machine, FMC's Hudson-Sharp Plant, Green Bay, Wis.

6 An actual bottle of The Christian Brothers champagne is not only displayed, but may actually be chilled, if desired, in this striking point-of-purchase unit. The bottle rests on simulated ice cubes and bottle holder of vacuum-formed butyrate. The waxed paperboard "champagne bucket" may also be filled with real ice to chill the bottle of wine if the dealer chooses. Colorful design on the bucket is a drawing illustrating The Christian Brothers Monastery and vineyards. Vacuum-formed ice cubes and bottle holder, Chanal Plastics, Rego Park, N. Y. Paperboard tub, Lily-Tulip Cup Corp., New York.

7 An appropriate gimmick with plenty of eye appeal for Northam Warren's "Heart-Throb" promotion of Cutex Pearl Nail Polishes is a heart-shaped pin, fitted snugly over the transparent polystyrene applicator-closure on each bottle of nail polish. The product is offered in eight summer shades and the pins come in eight matching colors. Slipped off the applicator-closure, the pin becomes a piece of costume jewelry to match the color of the nails.

8 Appeal as a gift item was the primary objective of this new window carton for S & R Infants Wear, Inc.'s "Pajees" line of infants' crawlers. Decorated with pixie-like drawings, the carton has a handy gift card die cut and printed on the front panel. Features of the carton are a side-locking closure that helps eliminate unnecessary product handling in the store and a tabbed top that enables the carton to hang from store racks for greater display versatility. Product identity and size are carried on the riser tab. A price spot is prominent on one end panel. "TRP" (Tamper-proof Rigid Protection) carton, Container Corp. of America, Chicago.

Injection-molded, low-density polyethylene container employs a new principle: Barrier-film lid is permanently welded to a break-away rim on the container itself

Gastight

A new, all-plastic cup-type container for packaging dairy products has several novel features that recommend it to wider attention:

- The tapered, round, 15-oz. container, injection molded of opaque-white, low-density polyethylene, actually costs less in one initial use, than the heavy waxed-paper cup it replaces.
- The film lid—a 3-mil triple ply of polyester, saran and polyethylene—provides such an effective barrier seal that it will hold the gas atmosphere used to flush oxygen from the product.
- The lid is permanently sealed to a break-away rim on the container, made possible by the injection-molding process which provides deep undercuts in the rim. Thus, the outer rim comes away with the lid upon opening and the lid plus rim can be easily snapped back in place for reclosure.

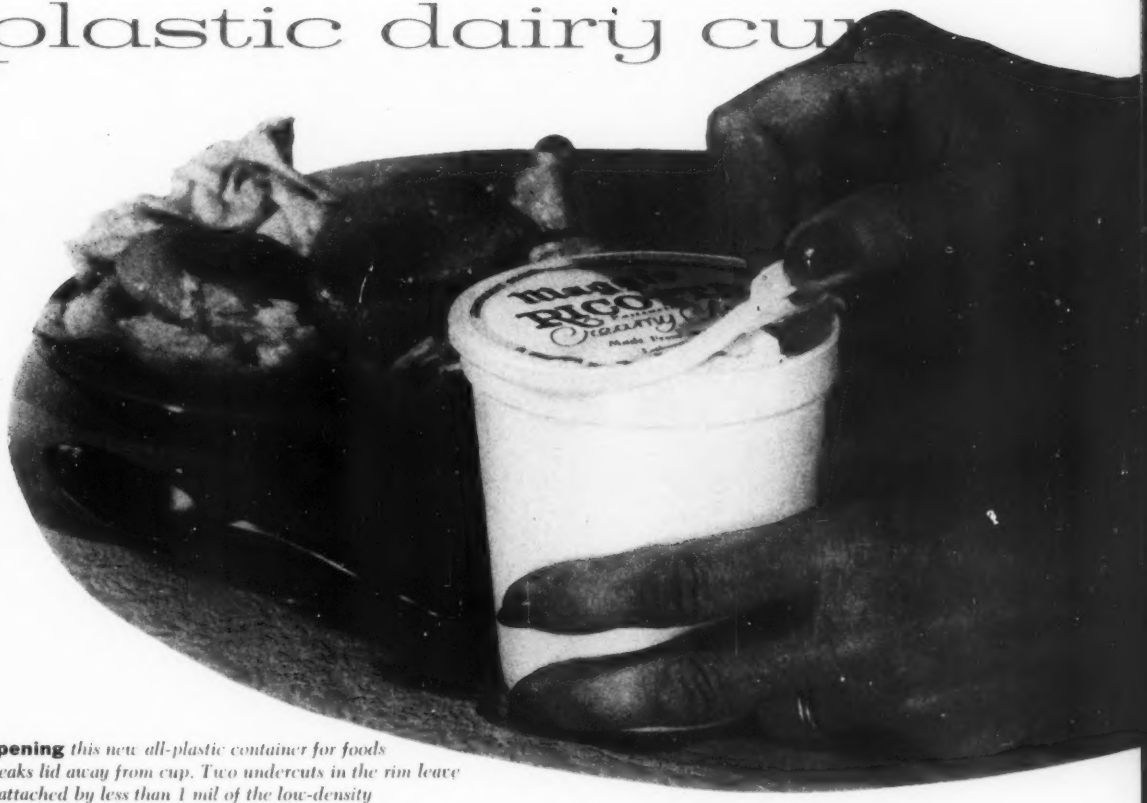
The hermetically sealed, nitrogen-filled package has more than doubled the shelf life of a soft, delicate, ricotta cheese now being packaged in it by the M. Maggio Co. Philadelphia. It is reported equally effective by other companies for sour cream, cheese dips and various potato and fruit salads.

Applied automatically

As used at the Maggio plant (50 employees), the all-plastic cup container is handled on an automatic 40-per-minute line that incorporates a new sealing

Packaging components *are an undecorated injection-molded cup of polyethylene (left) with rim which attaches to the lid and the film "lids," made from a web of polyester film extrusion coated with polyvinylidene chloride and polyethylene, printed in two colors and perforated in a circular pattern. Lid is permanently heat sealed to the cup (drawing) to form a high-barrier container.*

plastic dairy cu



Opening *this new all-plastic container for foods breaks lid away from cup. Two undercuts in the rim leave it attached by less than 1 mil of the low-density polyethylene, enabling a quick pull on the rim tab to remove the cover. Lid slips over the cup for reclosure.*

machine to punch the circular film lids from a perforated web and firmly heat seal them in place on the container after flushing the top of the cup with inert nitrogen. The semi-rigid plastic cups are first filled with product on a valve-type filler.

The Maggio container, which measures 3⅞ in. in diameter at the top and has the same depth, holds 15 oz. of product.

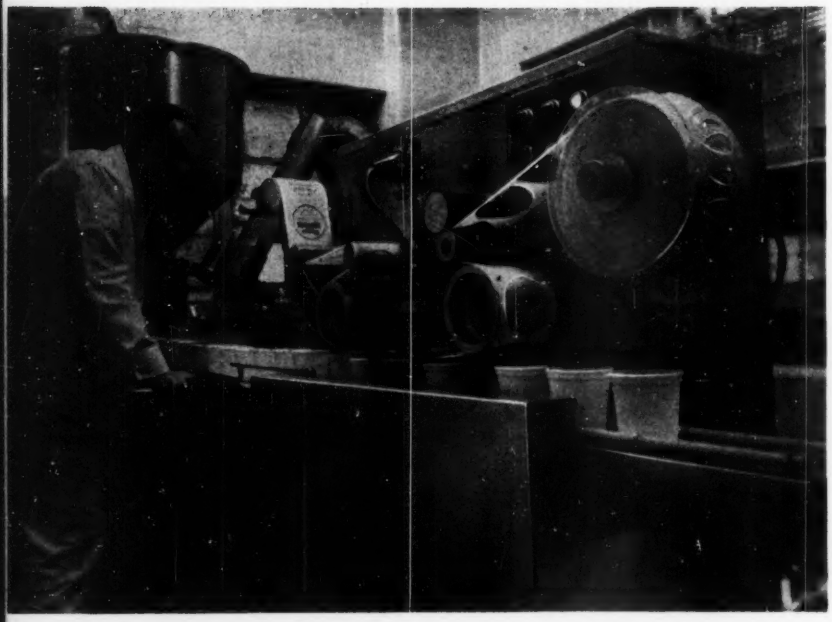
The hermetic seal and inert-gas flush enable a refrigerated shelf life of 17 days for the Maggio cheese, compared with nine days formerly. In tests of consumer and retailer reaction, it is said, comments ran 15 to one in favor of the new all-plastic package, compared with the former container.

The slightly tapering molded cup nests when empty and stacks readily when filled, despite its flexible nature. The walls average about 30 mils in thickness. It is a tricky piece of injection molding, because its thickened rim is almost divided from the body of the cup by two sharp undercuts, one of which is located above the rim and the other being positioned below the rim.

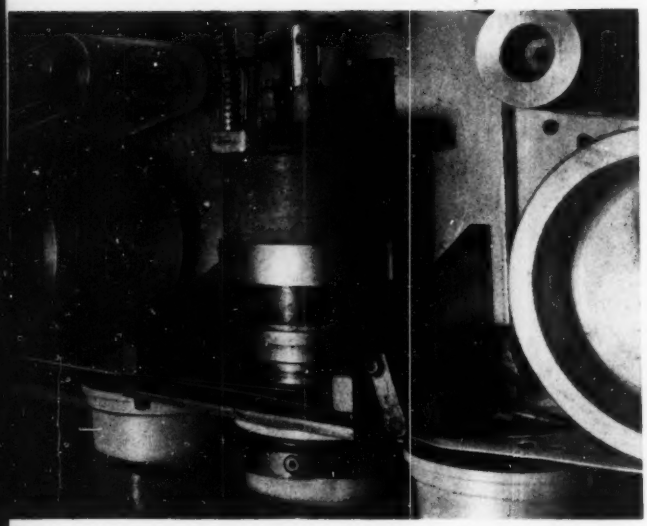
To open the sealed container, the consumer merely pulls a tab molded onto the rim and easily breaks the lid and rim away from the cup.

The lid material is based on a ½-mil polyester film, to which is coated approximately ½ mil of polyvinylidene chloride and about 2 mils of polyethylene. The polyethylene side, of course, provides the heat-seal joint with the container rim; the polyester surface of the lid is printed.

Punched out of a 4⅝-in.-wide roll of the combined plastics, Maggio's lid is printed in yellow and green. During printing, the supplier perforates



Sealing machine *takes filled cups from filler (left) and positions them under roll-fed web of film "lids." Circular heat sealer (center) punches each lid from the web and firmly fastens it to a cup as a jet of inert nitrogen flushes the head space in the package to increase shelf life. Note retractable ring (photo below) that supports rim of cup for heat sealing. Rollers with projections, at each side, register film web for precision sealing.*



each lid around its circumference so that it can be more readily punched from the web while the material is running on the sealing machine.

This unit accepts cups from the filler via a conveyor and times them under the sealing head by means of a three-station spacer with an orbital motion. As a container is centered below the heat sealer, a supporting ring rises to keep the flange of the cup from collapsing under sealing pressure.

The web of film is fed to the sealing station around two idler wheels and a registration wheel that contains small positioning knobs which fit into holes punched on each side of the film web. On the rewind side of the machine, the scrap web passes around a second registration wheel and another idler to a driven, rewind drum.

At the sealer, the web slides over a plate with a circular die hole slightly larger than the film lid, and honed to a sharp edge. When the circular sealing die is lowered over a cup, it forces the web against the hole in the plate, breaking the circular lid from the web and forcing it against the rim of the cup. As this motion occurs, a timed jet of nitrogen flushes the head space in the cup.

After heat sealing, the cup passes out of the machine and over a wire trip, installed in the exit conveyor, which activates a unit counter. Cups are hand packed in cases for shipment.

Recent advances in injection molding are evident in this container, which utilizes the sharp undercuts—previously avoided in plastic containers—to add utility and consumer convenience. The choice of the high-barrier film lid and its successful attachment to the rim of the cup solve a major problem in providing an adequate barrier seal for such packages and should encourage the use of such all-plastic containers for a wide variety of foods.

SUPPLIES AND SERVICES: "Seal-Tainer" polyethylene cups, lid film and automatic closing machine supplied by Plastomatic Corp., Malvern, Pa.

Plastics in packaging

A report from the Annual Conference of The Society of the Plastics Industry, with notes from the National Plastics Exposition

Packaging interest at the 9th National Plastics Exposition and Annual Conference in New York last month centered on a half-day conference session on "Plastics in Packaging" and in the displays of plastics materials and machines at the show.

More than 500 attended the packaging conference at the Commodore Hotel, which was moderated by Lloyd Stouffer, editor of MODERN PACKAGING. They heard four papers discussing the present and future growth of plastics packaging in general and plastic films, bottles, tubes and nestable containers in particular.

Following are substantially complete texts of the talks. A news report on packaging highlights of the exposition appears on p. 118B.

'Plastics in Packaging' seminar

Opening Remarks – LLOYD STOUFFER, *editor*, MODERN PACKAGING magazine. Plastics have reached a new and significant stage in their penetration of the packaging field. The new stage is simply this: The competitive materials – the old standbys of paper, metal and glass – are taking plastics very seriously. They are no longer fighting plastics; they are embracing them.

There isn't a single major producer of glass containers today that doesn't also have a major interest in plastics. The two largest makers of metal cans have gone heavily into blow-molded bottles. There isn't a single enterprising company in the paper, paperboard and folding-carton fields that doesn't have a plastics laboratory today – looking toward even greater use of plastics in combination with paper and paperboard.

It's the "in combination with" that sets the new note. When you think of plastics in packaging, you must learn to think not merely of plastic bottles and containers, plastic films and bags, and plastic closures – even though all of these items are important and rapidly growing more so. You must think of the sound, logical and economical combinations of plastics with other materials – through coatings, laminations, linings and fitments of plastics – to the end that the best package for a given job can thus be produced at the lowest cost.

Cost is something you can't fight in packaging. The biggest single factor in the growth of plastics in packaging in the last few years has been your great record of steadily reducing prices of plastics raw materials, while the prices of all other packaging materials have been going just as steadily upward.

The folding-carton makers who are now going so heavily into plastic-coated boxboard do so not because they love plastics, or because they think them glamorous, but simply because in this way they can produce a protective package at the lowest possible cost.

Polyethylene film wouldn't have half the volume it enjoys today if about four years ago the descending cost of polyethylene had not crossed with the rising price of cellophane – and suddenly polyethylene was the lowest-priced transparent film available.

Plastic blister and skin packages have had an overwhelming acceptance – simply because they solve marketing and packaging problems for many hard-to-handle items at the lowest possible cost.

Almost the entire liquid-detergent production – with a potential of close to a billion containers a year – has been swept in less than two years from metal and glass into high-density polyethylene bottles. Why? It's true that the consumer likes the "nice feel" of plastics. But these hard-headed soap companies, you can be sure, wouldn't have made the switch to plastic containers unless their cost analysis was favorable.

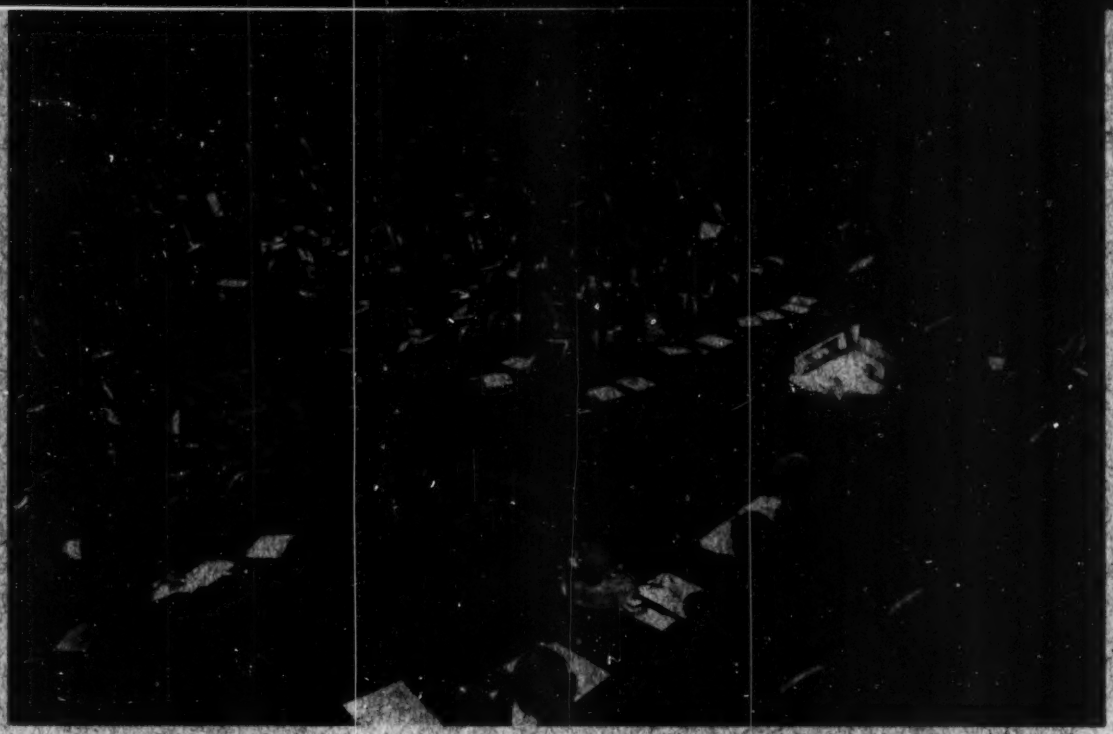
Thermoformed trays of lightweight PVC are now sweeping rapidly into candy and fancy fruits – because they cost less in the end and are more attractive than the paper cups and dividers which they replace.

Stop and realize that all of these big-volume uses of plastics today (and I've cited only a few) are for single-use, throw-away packages. This is a relatively new concept for plastics – and it's fundamental to your success.

And this is truly only the beginning. Every producer of paper milk containers is right now swinging from wax to polyethylene or other plastic coating; that alone is a market for 15-billion packages a year. And there is serious talk of an all-plastic milk container that may replace paper entirely. Major frozen-food packers are seriously testing a plastic tray package that could replace the conventional carton—at no greater cost. Others use wrapperless, linerless cartons that depend upon plastic coatings for barrier protection and hermetic seal – the great trend for the immediate future in the carton industry which last year produced nearly one-billion-dollars worth of packaging.

We have only begun to realize the potential of plastic shrink films – of which there are eight different types now in use. We are finding new functions and new properties in irradiated and oriented films. Polypropylene – which has every prospect of being as big in packaging as polyethylene – is barely launched. New and promising coatings, copolymers, blends and modifications of various resins remain to be exploited. Foam plastics are going to grow enormously and in many directions on the sound basis of function and economy.

This, then, is the stage for our discussion, and here



Left to right on speakers' platform: F. Norman Hartmann, vice president, planning and development, Lily-Tulip Cup Corp.; Alvin J. Sanders, supervisor, package construction, Household Products Div., Colgate-Palmolive Co.; Lloyd Stouffer, editor, MODERN PACKAGING; Florren E. Long (speaking), manager, product development and research, Flexible Packaging Div., Continental Can Co.; Donald R. Mahaney, market specialist – packaging, Market Research & Development Dept., Monsanto Chemical Co.

to report to you in detail are some of the country's outstanding experts in plastics packaging, representing both supplier and user viewpoints.

Forward Look for Plastics in Packaging – DONALD R. MAHANEY, *market specialist – packaging, Market Research & Development Dept., Monsanto Chemical Co.* I would like to position for you plastics' current role as a packaging material in the $6.6-billion consumer packaging market and, in addition, outline prospects for plastics growth during the next five years. The areas offering major marketing opportunities for expanded plastic packaging are polyolefin films for fresh produce, bakery products and soft goods; nestable containers and lids; blown bottles and extrusion coatings on board.

Many of you may have attended the recent National Packaging Exposition. Some 40 to 50% of its floor area was devoted to plastic packages. This may be a prognosis of things to come, but to date plastics penetration of the total consumer packaging market is just a little more than 4%.

The total value of consumer packaging in our economy rose from $5.9 billion in 1957 to $6.6 billion in 1959. An analysis of the dollar value of materials used to produce these packages reveals that paper and paperboard account for 45.5% of the total; metal, including aluminum foils, accounting for 33%; glass, 12.8%; cellophane, 3.9%, and wood, 0.6%.

Plastics packaging sales were $219,000,000 in 1957 and reached $280,000,000 by 1959, surpassing cellophane for the first time in total dollar value.

The gross national product of our economy is expanding at a rate of 4% per year compared with consumer packaging growth of 8.6%. We predict that the growth rate of plastics packaging during the next five years will be 19% per year compounded. By 1965 plastics volume will surpass $800,000,000 and we believe its share of the market will have doubled from 4.2% to more than 8%.

This growth in plastics consumption will occur in three major areas during the next five years: (1) unsupported flexible plastic films, (2) plastic containers and closures (we have termed this rigid packaging) and (3) combinations of plastics with other materials, such as plastic-based laminates.

By 1965, approximately 540,000,000 lbs. of flexible plastic film will be consumed in packaging. More than three-quarters of this will be of the polyolefin variety – polyethylene and polypropylene. The balance of 112,000,000 lbs. will include the specialty higher-priced films – vinyls, oriented styrene, vinylidene chloride, water-soluble polyvinyl alcohols, polyesters and the like. Markets for these will be diffused and highly specialized.

Monsanto's market research and development department analyzed 14 markets for polyolefin films. The first, dry cleaning and laundry, is the only application as yet to achieve anywhere near a high level of penetration. It is estimated that close to 90% of all garments cleaned and pressed are bagged in either kraft paper or polyethylene, accounting for 41,000,000 lbs. of film consumption in 1960. Shirts laundered in commercial establishments during 1960 accounted for 11,000,000 lbs. of polyethylene. These combined applications will have grown an additional 5,000,000 lbs. by 1965. However, this will still represent the third largest market for polyolefin films in packaging five years hence.

Produce packages are currently the largest single application for polyethylene film and account for better than a third of the 234,000,000-lb. polyethylene film total in 1960. Most of the film consumed in this market is converted into printed or unprinted bags. It is

estimated that 75% of these bags are filled and closed manually. Until recently, there was not a great need for machinery, since most of the packaging was done at the store level. Now the trend is toward centralized and, where possible, grower pre-packaging.

A wide variety of fruits and vegetables are not pre-packaged to any significant degree at the present time. Consequently by 1965 we are estimating that this will still be the largest single application for polyethylene films, consuming 127,000,000 pounds.

Paper products, including napkins, plates, towels and toilet tissue, accounted for 3,000,000 lbs. in 1960, with 28% penetration of a 17,000,000-lb. market. In 1965 we expect sales to rise to 11,000,000 lbs. with a 58% share of a 19,000,000-lb. potential market.

An interesting though small market is record packaging, where, in 1960, sales of 1,000,000 lbs. represents 20% of a 5,000,000-lb. market. This is largely protective packaging for inner liners. Polyethylene is now being used to overwrap the record jacket.

In meat, poultry and fish, 1960 sales of 1,000,000 lbs. is 2% penetration into a 34,000,000-lb. market. But by 1965, a rise in sales to 7,000,000 lbs. will represent a 15% penetration into a 38,000,000-lb. market.

Bakery products is the fastest growing area for *all* plastics packaging – a 1,000% growth of some 6,000,000 lbs. of polyolefin films in 1960 to 70,000,000 lbs. in 1965. Important considerations that lead us to predict this growth include the lower price of polyolefin films over cellophane, plus the development of inexpensive and effective attachments for existing bread-wrap machinery for handling polyethylenes. Long range, an ideal solution to the equipment problem in wrapping bread would be the development of a film which is tailor made to run on existing equipment without modifications. An approach to achieving this objective is the development of oriented, coated olefin films. The use of olefins will accelerate as the nation's bakers discover the advantages of this as a low-cost, transparent protective packaging film. By 1965 further impetus to this growth will occur as the overwrap equipment problem, which has deterred some bakers from using this economical and effective film, finally is solved.

Soft goods will grow from 22,000,000 lbs. in 1960 to 45,000,000 in 1965. Some of the reasons behind this growth are retail and consumer acceptance and the availability of automatic and inexpensive semi-automatic overwrap and side-weld bagging equipment for the packaging of soft goods.

Polyethylene sales of bags for hardware and housewares items will increase from 15,000,000 lbs. to an estimated 20,000,000 lbs. by 1965.

For toy packaging it is estimated that close to 15,000,000 lbs. of film, mostly in bag form, were consumed in 1960. The increase in the number of supermarkets which are rack jobbing toys and the trend toward self-service merchandising in variety stores will help to increase volume in this area to 20,000,000 lbs. by 1965.

A very attractive market, and one which has been slowed down in development due to machinery shortcomings, is the tobacco-products area. In 1960, we see virtually no poundage of any olefins into this market even though a potential of 25,000,000 lbs. exists. However, we anticipate there will be a technical breakthrough within the next five years in adapting cigarette overwrap machines to handle thermoplastic films. Also, the properties of polyolefins will be modified so that they can be handled more efficiently on overwrap equipment. Consequently, we estimate that by 1965 sales of some 10,000,000 lbs. can be obtained in this market, representing a 31% penetration of the potential.

Other small-volume users with growth potential are cereals and prepared mixes, expected to consume, by 1965, 2,000,000 lbs. or 6% of the 32,000,000-lb. polyolefin market, and candies, nuts and gum, expected to use 9,000,000 lbs., mostly printed polyethylene bags.

A market which has been attracting interest is the individual quick freezing of vegetables and fruits. Sales of polyethylene film to this market in 1960 were negligible, but by 1965, Monsanto believes, its volume of use will be close to 8,000,000 pounds.

The final category, miscellaneous items, includes such applications as magazine and newspaper overwraps, polyethylene bags for silver, jewelry, small appliances, and polyethylene bags and overwraps for such food items as sugar, flour and dried fruits. We guesstimate that sales will grow in this area from 26,000,000 to 37,000,000 lbs. in 1965.

The next major growth area is plastic rigid packaging – the blow molding, injection molding and thermoforming of styrene and its copolymers, polyethylene, polypropylene, acetates and butyrates. The biggest contributors to growth in this rigid packaging area are blown bottles and molded or formed containers and lids for foods.

Dairy applications, accounting for 25,000,000-lb. sales in 1960, will jump to 96,000,000 by 1965. Lids for these containers will move from 9,000,000 lbs. to 37,000,000. Produce baskets and trays, usually injection molded, will double from 8,000,000 to 17,000,000 pounds.

A variety of miscellaneous items, including portion containers, cups, carry-out containers and lids, etc., will increase from 16,000,000 to 32,000,000 pounds. In total food packaging then, we see about a 300% growth from 58,000,000 lbs. in 1960 to 182,000,000 in 1965. Much

Polyolefin film use in major packaging markets

MARKETS	1960 Sls. (Million lbs.)	1960 Potential lbs.)	1960 Penetration	1965 Est. sls. (Million lbs.)	1965 Potential lbs.)	1965 Penetration
Frozen foods	*	18	–	8	21	40%
Candy, nuts, gum	6	–	–	9	–	–
Cereals, prepared mix	*	29	–	2	32	6%
Tobacco	*	25	–	10	32	31%
Toys	15	–	–	20	–	–
Hdwr., hsewrs.	15	–	–	20	–	–
Soft goods	22	84	26%	45	99	45%
Baked goods	6	115	5%	70	125	56%
Meat, poultry, fish	1	34	2%	7	38	15%
Records	1	5	20%	5	10	50%
Paper products	3	17	28%	11	19	58%
Produce	87	252	35%	127	252	50%
Laundry, dry clng.	52	130	40%	58	142	41%
Other	26	–	–	37	–	–
TOTAL	234			429		

*Negligible

of this growth is the result of recent technological advancements in pressure forming and in-line vacuum-forming machinery. The major material used to manufacture lids and containers is polystyrene.

Future major areas of use for plastic containers are cottage cheese, prepared salads, premium frozen dessert such as sherbets and ice cream, and unit-portion containers for jellies, jams, cream, mustard, etc. Other rigid packaging markets include folded trays and boxes which will increase from 6,000,000 to 20,000,000 pounds. This includes the cold folding of oriented styrene and the fabrication of acetate lids and containers. (Closures and fitments will increase from 32,000,000 to 43,000,000 pounds.) The use of polystyrene in molded stock boxes will increase from 20,000,000 to 30,000,000 pounds. Custom-molded packaging usage of styrene will increase from 10,000,000 to 15,000,000 lbs. by 1965.

Blown bottles will increase from 50,000,000 to 200,000,000 lbs., 400%. This includes bottles for detergents, bleaches, polishes, starches, etc., as well as squeeze bottles. Sales of plastics for vials, can ends and a variety of other items will increase from 17,000,000 to at least 23,000,000 lbs. by 1965. Therefore, total consumer-goods rigid packaging jumps from 193,000,000 to 513,000,000 lbs. in 1965, with blown bottles and nestable containers and cups accounting for most of the growth.

Plastics in consumer rigid packaging

	1960 usage	Estimated 1965 usage
Molded and formed food packaging		
Containers for dairy and related products	25	96
Lids for dairy and related products	9	37
Tomato baskets	8	17
Others—baskets, portion containers, etc.	16	32
Total food packaging	58	182
Folded trays and boxes	6	20
Closures—food and non-food	32	43
Stock boxes—jewelry, novelties, drug, electronics	20	30
Custom-molded packaging	10	15
Bottles—household chemicals, grooming aids, etc.	50	200
Other—blister packaging, can ends, vials, etc.	17	23
Grand total	193	513

The third major area for plastics in packaging is extrusion coating. Our approach to analyzing this market has been to determine a breakdown of the quantity of polyethylene that will be extrusion coated on the various types of substrate materials used in packaging, such as paper, paperboard, films and aluminum foil, during the period of the next five years.

Listing these substrate materials, we will begin with kraft paper — up from 16,000,000 to 25,000,000 lbs.; military papers — from 5,000,000 to 6,000,000 lbs.; locker and freezer papers — from 2,000,000 to 18,000,000 lbs.; pouch stock — from less than 1,000,000 lbs. to 1,500,000; food board and cup stock — from 2,000,000 to 96,000,000 lbs. since it appears that single-service milk cartons will be extrusion coated with polyethylene; foil — from 8,000,000 to 11,000,000 lbs.; Mylar — from 3,000,000 to 5,000,000 lbs.; cellophane — from 12,000,000 to 22,000,000 pounds.

The largest growth area for extrusion coatings is for board, including bakery board, frozen-meat trays, frozen-food cartons and single-service milk cartons.

The use of plastics in packaging is indeed impressive. However, when the dollar value of plastic packages for merchandising consumer goods is compared with that of glass, metal and paper, it becomes apparent that the plastics industry has just begun to scratch the surface. As a consequence, the chances for increasing plastic packaging sales are bright.

Summarizing, the major marketing opportunities open for plastic packaging in the '60s are:

Polyolefin films for produce, bread and soft-goods packages; nestable containers, cups and lids for dairy products and fresh produce; blown bottles for detergents, bleaches and polishes, and polyethylene extrusion coatings on paperboard.

A factor working in favor of plastics is the change that has been occurring in the relative prices of plastics and other materials. Since 1950 paperboard prices have risen 150%, glass containers have increased 132%, while the two major plastic packaging raw materials (polyethylene and polystyrene) are now selling at 60% of their 1950 price.

However, price declines of plastic materials have outpaced production and marketing efficiencies. The resulting cost-price squeeze has forced some raw-material suppliers to cut back their programs aimed at developing new materials and markets to the long-term loss of the entire plastics industry. Converters require adequate returns to improve molding and forming techniques and to expand their capacities in order to capitalize on these new marketing opportunities. Essential to the growth we are projecting are satisfactory profits at all levels of manufacture and distribution.

In 1960, packaging applications accounted for 7.5% of the total plastics production. By 1965 production of plastic raw materials is predicted to reach 9 billion pounds and packaging end uses, it is expected, will consume 14% of this total poundage.

If the plastics industry develops the applications outlined above on a profitable basis, then the growth of plastics in consumer packaging in the next five years can truly be classified as "dynamic."

Flexible Plastic Packaging Films — FLORREN E. LONG, *manager, product development and research, Flexible Packaging Div., Continental Can Co.* A flexible package can only be an ideal package when the proper permeability levels are built and maintained in the package.

Cellophane was developed as a plain or PT cellulose sheet. This base sheet had good greaseproofness, fair gas protection and good resistance to essential-oil permeability; however, it offered too high a moisture permeability to maintain producer quality for a number of products. With the development of coatings such as nitrocellulose and, later, polyvinylidene chloride types, both moisture and gas permeabilities were lowered to offer permeability levels to cover a wide range of products. Further development of laminations to foil, polyethylene, etc., resulted in even greater applications of

permeability levels. Plain PT cellophane would provide WVTRs of more than 60 gms./100 sq. in./24 hrs.; whereas, the value for cellophane coated one side would be approximately 12 gms. Coated two sides, cellophane would permeate 0.4 gms. and with foil lamination, the permeability is less than 0.01 grams.

Polyethylene film, because of its low moisture permeability and high gas permeability, became a natural package for produce. The high gas and oil permeability made the film undesirable for a number of products. As in the case of cellophane, coatings have been developed to improve protection, thus providing a film of good barrier properties to gas as well as to moisture. Also, polyethylene has found wide use in laminations such as cellophane-polyethylene, where the cellophane is the gas and oil barrier and polyethylene is the moisture barrier and closure medium.

Numerous other films have their respective levels of permeability and have in most cases been coated and laminated into a wide variety of flexible packages. Cellophane and polyethylene are two of the widest-used films and we are using them here as examples of films that have good and bad inherent permeability levels and are tailored for specific end uses by further conversion.

We must keep in mind that products to be packaged vary considerably in their sensitivity to atmosphere exposure, thus require varying levels of permeability. Fresh produce requires a high gas permeability, while dried vegetables require a very low permeability.

Polymer-coated cellophane, which is a good gas barrier, might be laminated to polyethylene, which is a good moisture and sealing member but a poor gas barrier, resulting in a structure with good gas, moisture, closure and durability permeability. Likewise, polyethylene or cellophane might be laminated to foil, paper, polyester or an infinite number of webs to provide the desired permeabilities for specific products.

Polyethylene, which is a good moisture barrier but poor gas barrier, has been coated with polyvinylidene chloride coating, resulting in a sheet with good moisture and gas barrier properties in much the same manner that cellophane is coated to give good moisture protection. Combinations of polymer-coated cellophane and polyester are in common use in laminations to polyethylene, the manufacture of which requires both coating and lamination techniques to give the desired permeability. Also, aluminum-foil laminates or other non-sealable films might be coated with a heat-sealable coating to provide low-permeability overwraps.

Another conversion technique coming into use is vacuum aluminum metalization. While the thin layer of aluminum metalization is generally considered to be more decorative than protective, the protection obtained from this layer, specially in subsequent laminations, can reduce permeability by one-fifth or more. If the metalization is put on a very rough surface, such as a machine-finished paper, the permeability improvement will be unmeasurable; however, on a very smooth surface, such as polyester, considerable improvement is noted in resistance to permeability as well as in reflectance. With new techniques to reduce metalization costs, it should find wider usage in the converter field.

Other techniques of process upgrading of films, such as irradiation, are already in production. Orientation of a number of polymeric films is being undertaken to improve permeability and other properties.

A number of other different conversion processes and techniques are in use to improve permeability and performance of flexible packaging materials. Coating, one of the more economical methods of upgrading, is the most widely used. Merely coating a film for protection does not assure best protection, as continuity of the coating is the most important controlling factor. A rigid quality-control program is needed to insure the maintaining of desired permeabilities during manufacturing as well as in the packaging operation.

In our quest for better permeability and functional films we still have been unable to develop the universal flexible package. The newer films have interesting properties, but still need conversion improvement.

Nylon has good gas barrier properties; however, it offers poor moisture protection. In laminations with polyethylene it would provide a good gas- and moisture-barrier film. There are four different basic resin types of nylon: Nylon 6, Nylon 6/6, Nylon 6/10 and Nylon 11. Physically, they differ mainly in softening point, toughness and permeability. Nylon 11 type has found considerable use in Europe for packaging liquids, cheese and oily products. These products require gas- and grease-permeability protection, but are not critical to moisture loss, the limiting permeability factor of nylon film. If the high cost factor can be improved and toxicity clearance obtained, nylon should find wider usage due to the low gas and grease permeabilities.

Polypropylene has been developing very rapidly in the flexible-packaging field due to its low cost and good permeabilities. Polypropylene has good moisture permeability protection, but fairly high gas permeability. Orientation of this film has resulted in further lowering of these permeabilities, improved low-temperature durability, as well as better machine handling and appearance properties. Already, coated sheets are becoming available to further lower gas permeability and improve sealing. Metalization, lamination and other conversion techniques to upgrade permeabilities are only now in the exploratory stage, but they are expected to yield some rather interesting applications.

While polyesters are not brand new films, some modifications have created new types. The availability of polymer-coated types has resulted in greater use in laminations to polyethylene for gas packaging of meat and cheese. The coated, as well as the uncoated, have found use in the cook-in-pouch application in laminations with polyethylene. A heat-shrinkable type has found some markets in food packaging requiring a tight wrap with good toughness, greaseproofness and medium-protection permeability levels.

Polystyrenes have been worked over into a number of new films. Foamed polystyrene has been offered commercially, but due to its high permeability, is being used mostly for decoration and insulation applications. Considerable work is being undertaken in the direction of lamination to upgrade permeability of foamed styrene to enhance its usefulness. Various modifications of the clear oriented film have been made to upgrade machine sealing, handling and to improve permeability. One of the more promising products is a coated sheet which provides considerably lower permeabilities and improved sealability characteristics.

Some improvements in fluorocarbon films have been made. One of the more outstanding is a fluorohalocarbon, which passes one-tenth or less the water vapor of

an equal gauge of polyvinylidene chloride film. However, gas permeabilities are slightly higher than for the polyvinylidene chloride films. To our knowledge, this plastic is the best transparent water-vapor barrier currently available for film use. Since this film is still in the initial production stages, the price is high for most applications. This cost level is further complicated by the low yield, due to its specific gravity of 2.1. With increased production and availability of lighter gauges, this film should find wider usage due to its low permeability, toughness and transparency.

Polyethylene still continues to find ever-expanding markets. Possibly one of its more interesting developments is blending to form specific permeability. Some of the common blends are rubber-polyethylene, nylon-polyethylene, as well as two or more polyethylenes with different characteristics themselves. A nylon-to-polyethylene lamination would provide a good gas-barrier film from the nylon portion and a good moisture barrier from the polyethylene portion. By making a blend of these resins, a similar type of result is obtained in a single film at lower cost. Much more activity is predicted in this area in the future. Another reduced-permeability form of polyethylene — polymer-coated polyethylene — has been tried for a number of markets with limited success due to bonding and coating problems. Recent improvement in bonding and coating techniques again brings this film into commercial feasibility. Irradiated and oriented films are also showing interesting permeability properties and are now in commercial use.

Aluminum foil has recently received an upgrading with new alloy techniques which result in higher strength. Major benefit of this upgrading appears to be possible lowering of gauge and maintenance of equal permeability protection, or providing increased protection in equivalent gauge.

The major water-soluble films are polyvinyl alcohol, carboxymethyl cellulose and polyethylene oxide. Most of these films have good gas-barrier properties, but poor water-vapor protection. Most applications in packaging have been keyed to individual pouches for bleach, soaps and detergents. Also, due to chemical resistance and low gas permeability, water-soluble films have found usage for dye, spray and other poisonous or hard-to-handle chemical packaging.

A number of new or modified forms of cellophane are becoming available. Polyethylene coated in a very thin film is one example, as well as two thinner plies laminated with a thin ply of polyethylene and overcoated with polyvinylidene chloride, or nitrocellulose coatings. Increases in the yield of a number of cellophane sheets have been offered by lowering the base cellophane sheet. We anticipate even greater improvements will be made in cellophane sheets to improve permeabilities, both initially and after handling.

In a review of flexible packaging films it is important to consider the effect of the new F&DA regulations, since a large portion of these packages are used for foods. Besides the toxicity aspects of these films, we must consider their converted forms. While nylon film has not received approval, a nylon-polyethylene laminate might obtain approval if acceptable extraction levels with polyethylene next to the food can be proved. Coatings also are being used to lower extractions. Recently, we noted that a cellophane manufacturer eliminated nitrocellulose-coated colored cellophane from its standard line for food packaging, replacing it with polyvinylidene chloride-coated colored film. We believe this was done by the manufacturer in order to take advantage of the lower extraction through the polymer coating.

A closer look at many of the new films will show that they are a further conversion of a previously available film. Such conversions are being made to improve permeability, appearance and performance properties. Gas permeability seems to be the property which needs upgrading the most on the newer films. Polyvinylidene chloride coatings have been found in general to provide the best results in reducing gas permeabilities and, in some cases, moisture permeability as well. Some examples of this polymer-coating upgrading can be found on the market today, the most common ones being coated cellophane, paper, polyester, polyethylene, polystyrene and polypropylene films.

Since all these flexible packaging films and their converted products have varying permeability levels, initial consideration must be made on the basis of the product's permeability-level requirement. Once the permeability-level requirements are established to maintain producer-quality product, then the packaging engineer can proceed to design a consumer-acceptable unit based on pre-established permeability levels.

Flexible packages can be ideal packages when the proper film-permeability and product-protection requirements are satisfied. A considerable number of converting techniques are available to enhance the range of permeabilities of flexible films.

With the ever-increasing number of new plastic films and their converted products, the consumer-market panorama will continue its changing scenes beyond the imagination of our greatest visionary.

Plastic Bottles, Tubes and Other Merchandising Packages — ALVIN J. SANDERS, *supervisor, package construction, Household Products Div., Colgate-Palmolive Co.* As a major mass-volume merchandiser of a wide variety of consumer and industrial products, the Colgate-Palmolive Co. has had long and varied experience with and an intense interest in the use of plastics for packaging.

What we seek in considering plastic materials are all of the properties any packaging material must possess to present our products properly to the buying public, *plus* those properties which will help the package sell itself in self-service stores. These materials must bring the package to the consumer in good physical shape, should perform well on readily available packaging equipment, be easily obtainable from more than one source of supply. They should overcome those disadvantages existing in the older packaging materials and add a plus feature. Their quality should be consistently high and, of course, their costs should be low. One more requirement — we seek your constant cooperation, technical knowledge and guidance in locating and making the best use of these materials as well as those materials which are yet to come.

During the World War II period, when lead and tin were not available, attempts were intensified to make use of substitute materials for collapsible dentifrice tubes. Paper, aluminum foil, cellulose acetate were among the experimental materials we evaluated, either alone or in combinations. Lack of ability to retain essential oils and to prevent drying out of product quickly eliminated these materials. Many of the newer films —

the polyolefins and saran, to mention some – either coated or uncoated, were studied, but the goal has not yet been reached. However, we were successful in developing a new all-plastic closure for this tube. The polyethylene closure gave us a merchandising lift and it did not require the use of a liner.

One of our spray-detergent products requiring protective packaging, suddenly thrust into the limelight by virtue of a new merchandising program, needed a new carton design. It was found that the old standby materials would not suffice. A joint program with one of our suppliers eventually resulted in the development and use of a polyethylene-laminated carton which successfully met all of our requirements.

Today we are marketing Liquid Vel, a liquid detergent, in a custom-shaped, blow-molded, all-plastic squeezable container having a rigid, all-plastic closure and two printed paper labels. Developments leading up to this package were a plastic-lined lithographed metal container with a plastic nozzle sealed with a rigid, all-plastic closure; a cylindrical plastic-bodied container with coated metal ends and a flexible plastic cap; a plastic-lined lithographed metal container with a metal nozzle and the same all-plastic, rigid closure. Our present container has many attributes. We are still searching, however, for the low-cost, high-speed-printed, top-quality decoration we had with the metal can and the plastic-bodied metal-end container. When we balance out the virtues of our present package in terms of our objectives for this particular product, we see that we have come a long way, but not quite full distance.

Our Market Research Dept. recently completed a survey in which one of our products packed in identically shaped containers – one all-plastic and the other a composite can – disclosed an overwhelming consumer preference for the product in the plastic container. This finding can be attributed *only* to the package. The "feel and squeezability" of the plastic container were reported to be very desirable qualities.

Still another example. When premiums must be visible to stimulate impulse purchasing, we overwrap them with our products in an appropriately printed, transparent, heat-sealable film.

We estimate that our Packaging Laboratory is alloting about 50% of its time in developing and evaluating plastics for potential uses. During the last two months, we have held some 30 discussions concerning plastics with sales and/or technical representatives. The interests covered by these representatives ranged from the prime resin supplier to the converter. Our efforts, you see, are both extensive and intensive.

We think that there is an almost unlimited field ahead for these synthetics. The ability of plastics to be fabricated into appealing shapes, to protect products and to eliminate hazards of personal injury are prime merchandising factors. But to supply a mass market, we must also have total low packaging costs – the sum cost of the container, its decoration and its handling in our factories. Then, we believe, the use of these materials will be more speedily extended.

Rigid Plastic Nestable Containers – F. NORMAN HARTMANN, *vice president, planning and development, Lily-Tulip Cup Corp.* When we talk about rigid plastic nestable containers, we refer, today, to packages that are made in whole or in part of thermoplastic resin,

Mr. Sanders showed this progression of Colgate-Palmolive's Vel to all-plastic bottle, starting with metal-end polyethylene container at left, going to metal can with polyethylene nozzle (center) and, finally, to the present high-density polyethylene bottle.

having a full-opening mouth and tapered sides, designed to permit the nesting of one container into another when they are unfilled and unclosed.

Certain of the basic qualities of such containers are obvious: reasonable requirement for space in the packager's warehouse, easy filling, convenience of product removal and easy reclosability.

Although such containers have found a wide variety of logical uses, both for food and non-food packaging, the major portion of those being produced today goes to the food-processing industries.

The variety of materials used in making rigid plastic nestable containers can be classified in four major groups for the purpose of easy identification:

(1) *Injection-molded plastic containers.* The first such products were of crystal polystyrene; some are made of polyethylene; but, in recent years, the trend has been toward either high-impact or medium-impact polystyrene, the predominent material used today. Closures usually are of the same material.

(2) *Thermoformed plastic containers.* These are generally made of one of two types of materials – high-impact polystyrene, either natural or in pastel opaque colors, and biaxially oriented polystyrene, clear transparent. Considerable work is also being done on formed containers made from linear polyethylene and polypropylene. Formed containers usually are available with formed covers made of the same material as the body.

(3) *Plastic-coated paperboard containers.* The coating formulations used on such containers are many and varied, but most usually are vinyl or based on one of the styrene butadiene latices. Covers for these containers may be formed of paperboard or may be of plastic, either formed or injection molded.

(4) *Extrusion-laminated plastic paperboard containers.* Paperboard, extrusion laminated with polyethylene, is also used as a material in the manufacture of rigid nestable containers. They are usually offered with either a formed paperboard or formed plastic cover.

In recent years, substantial product improvement has been made in each of these categories. The injection-molded container is now available in light-wall construction, effecting a saving in material. It is made from improved materials, at substantially lower cost than

heretofore. Usually, too, this item is now produced on small-capacity automatic molding machines at faster cycles of production.

Important advances in thermoforming technology permit making of containers of substantially uniform dimensions, with much improved and more uniform distribution of materials throughout.

Coated and extrusion-laminated paperboard containers are manufactured at high speeds to reflect to the user the advantages inherent in items using as base material fully bleached paperboards.

It is significant to note that emphasis in marketing all-plastic packages is quite different than it was on original introduction. A case in point is the injection-molded container. During the early years of its promotion the major plusses claimed for it were transparency and re-usability. Unquestionably, there is merit to these characteristics, but in seeking a permanent place in food packaging it became obvious that they were not nearly so important as originally thought.

Transparency is a quality that has merit for certain table-ready foods, but is of questionable value for others. Even though a package has re-use characteristics, experience suggests that there is very little of long-range merit in such a quality since the homemaker is limited in the number of such packages that can be re-used.

These illustrations suggest, then, that it is important to assess in advance the *real* merit of a package rather than to trade on its presumed qualities.

In the past, some lack of awareness of the fundamental requirements of specific markets has been a problem to both package manufacturer and user alike. This has resulted in a number of false steps in promotion of the use of rigid plastic nestable containers for use with foods moving through normal food-distribution channels. Now, it is generally felt that there will be a surge forward in the food industry through automatic merchandising. Equipment manufacturers and operators are developing programs designed for that objective. Packages, of course, will play a big part in determining its success or failure. The extent to which rigid plastic nestable containers may play a part in this automatic-merchandising picture remains to be seen.

How is it possible to do a more constructive over-all job in the future to take advantage of opportunities that appear to exist? Perhaps what is needed is a little better sense of direction. Perhaps those who make nestable containers in whole or in part from plastic materials must more accurately assess the position of these materials in today's competitive market. Even though the many merits of thermoplastic resins as packaging materials generally are recognized, it is important that recognition be made of the pitfalls that might be ahead.

We must not fail to remember that the material must be precisely right for the intended use; the design and structure must be precisely right for the intended use; it must be possible to convert on a uniform quality basis to satisfy the intended use; there must be intimate knowledge of the intended market, and the sales organization must be capable of intelligent, regular contact with and service to the intended market, rather than depend on the "law of averages" to generate sales.

Show visitors see some plastics packaging materials of the future

Packagers who roamed the more than 260 exhibits at the Plastics Show, spread over three floors of New York's Coliseum, had to look hard for new packaging items. This was not surprising, since this show followed by only two months the big AMA National Packaging Exposition in Chicago, where most plastics suppliers unveiled their biggest packaging developments. However, for the persistent showgoer there were some new items and some over-all impressions of significance.

Exotic new plastics for packaging were the most noticeable features on the floor. An acetal copolymer that is reported to have exceptional strength, resistance to chemical corrosion and adaptability to various decorating techniques was shown formed into aerosol bottles. Tougher high-density polyethylenes, reportedly easier to blow mold, were displayed in many bottle applications. And a new extruded vinyl sheeting was introduced that has exceptional clarity and gloss and is projected for use in blister packaging.

Polyethylene appeared in a new packaging application as a molded re-shipper for bottled beer that has center-tuck top panels that close on reinforced plastic hinges. Made from a high-density material, the new shipping cases cost more than three times that of a corrugated shipper, but give three and a half times the number of trips and, being impervious to water, they can be filled with ice for picnic use.

Featured at another exhibit was high-impact polystyrene so tough that an injection-molded cup with walls only 1/32 in. thick would support a man's weight. And industrial packagers viewed with considerable interest another new form of polystyrene—expandable foam strands that look like spaghetti and have great cushioning power at a density of only 0.5 lbs. per cubic foot. Molded containers of polypropylene were in evidence, too, featuring an integral plastic hinge that can be flexed thousands of times without breaking.

Most of the machinery on view was for injection, compression and blow molding, and specifically aimed at molders. However, the higher speeds and more efficient operation of this equipment portends better and less costly molded plastic containers for packaging.

Two machines of more than casual interest to packagers were ultrasonic welders for plastic film and sheet. While the models at the show were of the "sewing-machine" type for non-packaging use, they were regarded by some packaging experts as forerunners of machines specifically designed for packaging applications (see "Ultrasonics: When?" this issue, p. 100, and "Ultrasonic Sealing of Foil," this issue, p. 129).

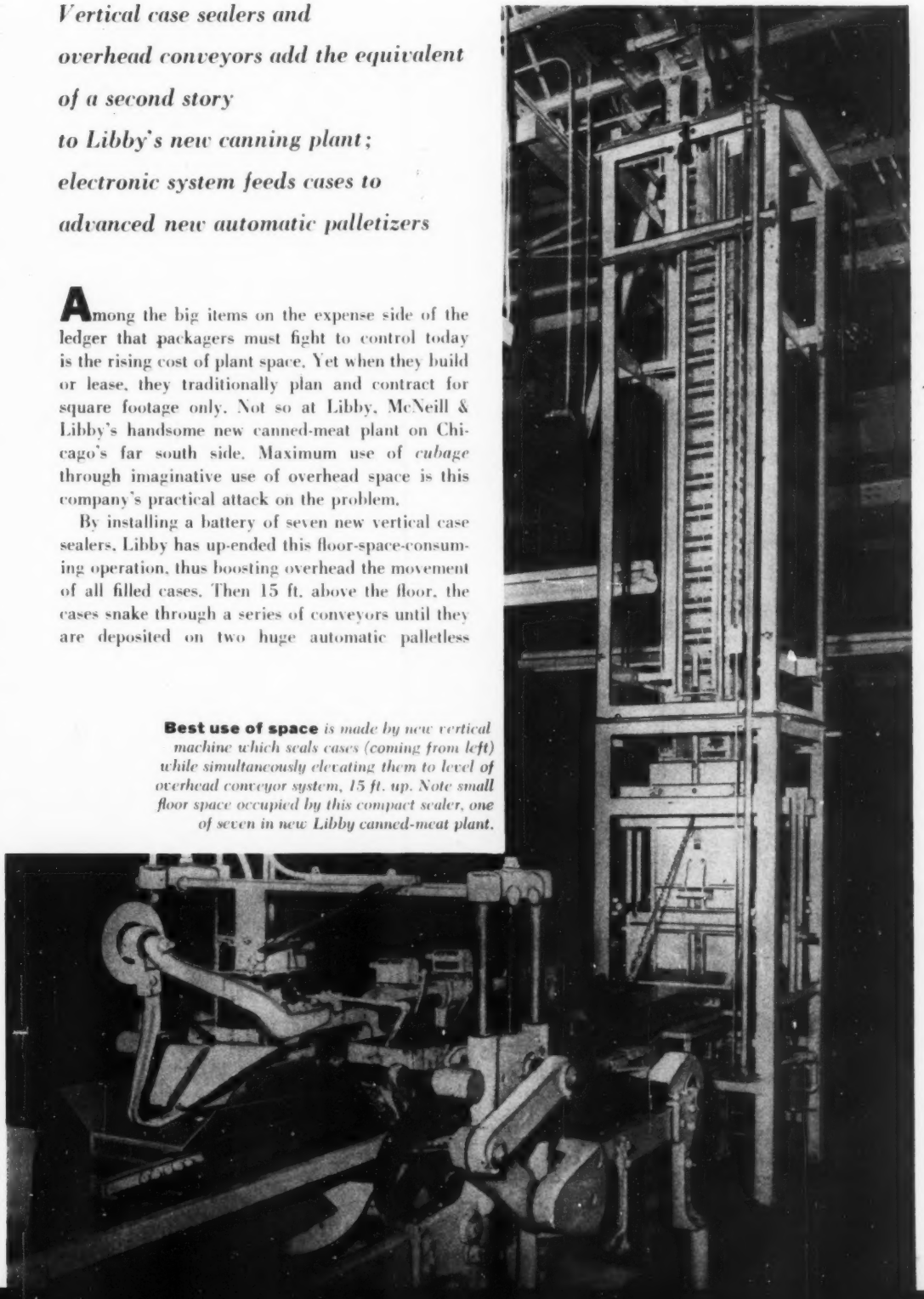
Behind the exhibits, there was considerable discussion about new materials for packaging that will be out later this year. Polypropylene film, in particular, appears likely to be available in a much greater variety of types and numbers. At least two companies privately revealed their intention to announce soon bi-oriented films of this plastic, in both uncoated and coated forms, said to be both tough and easy to handle and heat seal. Also, technical men from another firm were quietly sounding out the packaging possibilities of a special new polycarbonate film that is expensive, but has great stability, tensile strength and heat resistance.

Payoff in overhead

Vertical case sealers and overhead conveyors add the equivalent of a second story to Libby's new canning plant; electronic system feeds cases to advanced new automatic palletizers

Among the big items on the expense side of the ledger that packagers must fight to control today is the rising cost of plant space. Yet when they build or lease, they traditionally plan and contract for square footage only. Not so at Libby, McNeill & Libby's handsome new canned-meat plant on Chicago's far south side. Maximum use of *cubage* through imaginative use of overhead space is this company's practical attack on the problem.

By installing a battery of seven new vertical case sealers, Libby has up-ended this floor-space-consuming operation, thus boosting overhead the movement of all filled cases. Then 15 ft. above the floor, the cases snake through a series of conveyors until they are deposited on two huge automatic palletless



Best use of space *is made by new vertical machine which seals cases (coming from left) while simultaneously elevating them to level of overhead conveyor system, 15 ft. up. Note small floor space occupied by this compact sealer, one of seven in new Libby canned-meat plant.*

palletizers in an adjacent room. Result: the cost-cutting equivalent of a second floor in this one-story plant. Moreover, combined with a new can-making operation—its first since 1935—the new facilities have allowed Libby to expand its canned-meat production capacity sharply.

The automatic palletizer installation is believed to be the largest in the food industry in the Midwest. This electronic set-up is the output end of new equipment starting with seven pneumatically powered vertical case sealers. Up to that point, the equipment used in this Libby plant is standard.

Vertical case sealers

Each of the new vertical case sealers is only 68 in. in horizontal length, occupying less than one-fourth the floor space required by a comparable horizontal sealer. An average saving in floor space of at least 36 sq. ft. per sealer, multiplied by seven, means that more than 252 sq. ft. of floor space are available to the company for other purposes.

In their dual function of sealing while simultaneously acting as elevators to raise cases to the operating level of the automatic palletizers, Libby's vertical sealers also substitute for separate elevators that would have been necessary if conventional horizontal sealers had been installed. Here, with the battery of seven units, an additional amount of square footage of valuable floor space is saved.

Each of Libby's canned-meat products—hash, stew, vienna sausage, etc.—has its own processing area, conveyor system and packaging equipment leading to its own case sealer.

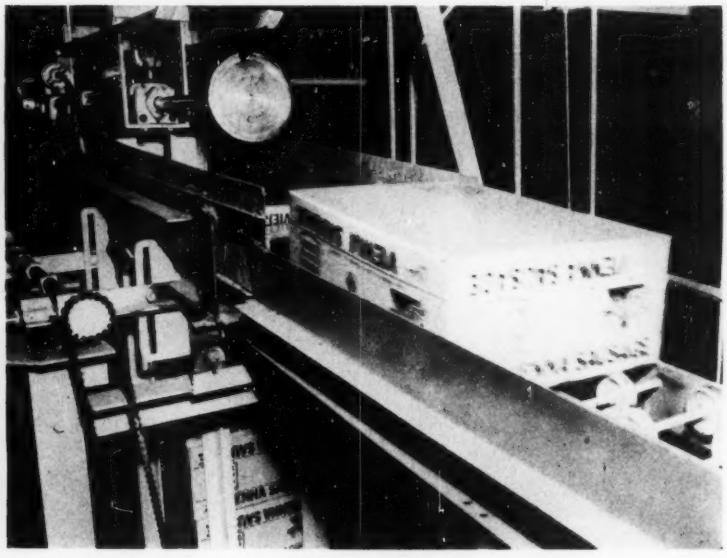
After conventional labeling and case packing, cold glue is applied by standard equipment to top and bottom flaps of the case. Flaps are plowed closed and cases enter the vertical sealers, each of which can handle up to 30 cases per minute at peak periods. The units are completely pneumatic except for an electrically operated belt drive.

The case sealers are of differing heights to allow for variations in conveyor levels. The average height is 15 ft. and, in this height, from 11 to 30 cases may be stacked. The entering case bears the combined weight of all cases in the column, thus receiving most compression while its adhesive is still tacky.

Moving into the sealer, each case contacts a squaring plate which automatically evens up all corners. At the same time, the case trips a bleeder valve, activating an elevator which raises the case into the sealing column. The case moves upward through a spring-loaded mechanism of vertically mounted latches to compress all four case sides and eliminate any gap between flaps. These latches automatically release as the case moves past.

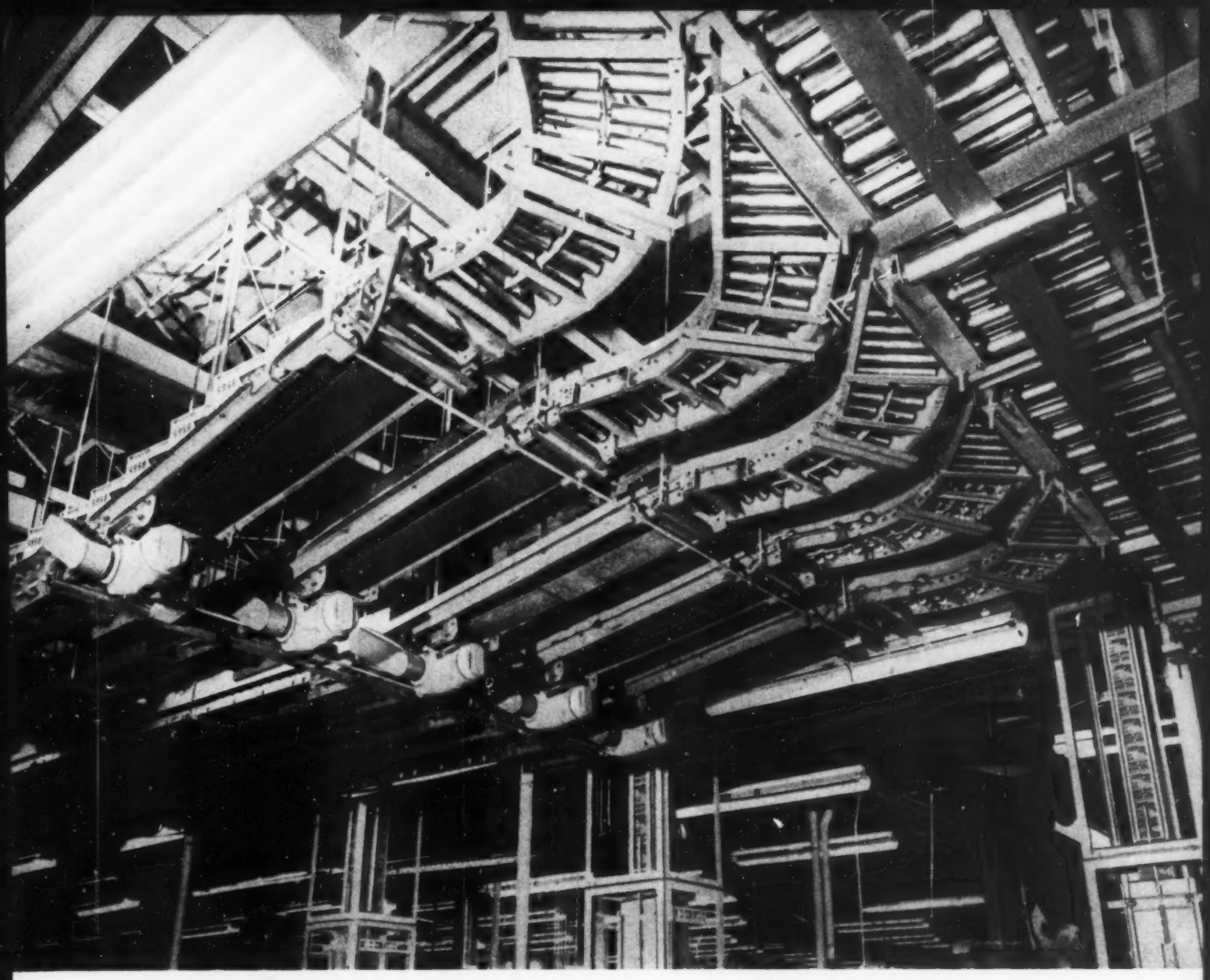
When the bottom of the entering case reaches a point just above the latches, the elevator contacts two more bleeder valves. The first causes the ele-

HOW VERTICAL CASE SEALER WORKS



Pneumatic elevator *lifts case into sealing column. Spring-loaded latches (arrow) have just compressed case sides.*

Air cylinder *ejects sealed case from top of stack onto roller conveyor 15 ft. above floor. Cylinder is acuated when bottom case at base of sealing column is raised by elevator.*



Looking up at conveyors. *This apparently complex overhead system is actually an efficient space saver, permitting accumulation of enough cases to feed new automatic palletizers in an adjoining room. Note three of the vertical scalers moving cases upward to the conveyors.*

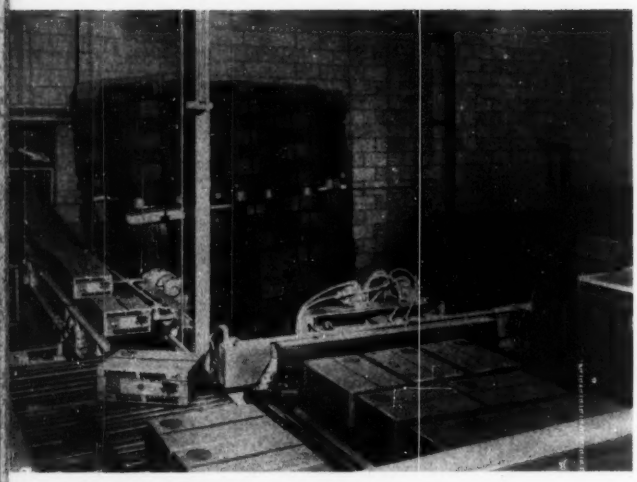
vator to return to lowered position to receive another case. The second, connected with a horizontal air cylinder at top of the column, causes this cylinder to advance and eject the top case from the column onto the overhead accumulating conveyor.

The conveyor lines do not converge until they approach the palletizers. Meanwhile, they snake around to allow ample case-accumulation space.

Palletless palletizers

Case-size adaptability of the palletizers is a big factor; the automatic adjustment of these electronically controlled machines to different case sizes is one of their advantages. Each palletizer handles a weighted average of 50 cases per minute, depending on case size. Operation of the two palletizers and their accumulation-conveyor systems is identical.

At the point where individual lines converge into two master conveyors leading to the palletizers is a series of meter belts, one for each line. Cases align themselves "bumper to bumper" behind the meter belt for their line and type of product until a full palletizer load is reached. Each load comprises cases of only one product at a time. This may be from 55 to 225 cases, depending on case size. When a full complement of cases is lined up behind the meter belt, a pre-set switch—indicating a full load—is activated. An electronic impulse is sent to a line selector on the palletizer. This scanning and memory device records the fact that a full load has lined up behind the meter belt; it also records the consecutive order in which "full-load" switches are tripped on other lines. Lines of cases are released to the palletizer in recorded order to



Palletless palletizer *(right) arranges cases in pre-set pattern controlled by an electronic device. Rows of cases are rammed off package conveyor onto stripper plate until full layer is completed. Stripper plate retracts, depositing layer on lowering device beneath. This is one of two such machines handling new plant's output.*

prevent any undue back-up on any one line. Thus, when the last case of a given load moves onto the palletizer from one line, another electronic impulse is sent and the line selector releases the next line.

Each line has excess conveyor length—about half as long as the full-load length—behind the "full-load" switch. This secondary accumulation area is seldom completely filled because the lines are released in order to the palletizer, permitting the vertical case sealers to operate continuously. Should a malfunction in any line cause a traffic jam, a second switch is automatically tripped to shut down that sealer until the situation is corrected.

The line selector controls the movement of all cases until they reach a rotating point on the palletizer, where some are automatically turned to fit into a predetermined pattern. Some face one way, some another, depending on stack patterns worked out by Libby and the equipment supplier on the basis of load strength, rigidity and appropriate measurements for each case size. Once patterns were determined, a series of mechanical and electronic devices was manufactured to control the formation of cases into different patterns.

With about 200 relays, 40 limit switches and 20 electronic tubes, each palletizer's complex network "remembers" the predetermined pattern for each load emerging from each line, the number of layers in each load and when to switch to a different pattern for the next load. The machine can run for hours without manual adjustment, but a manual control panel can override all automatic devices.

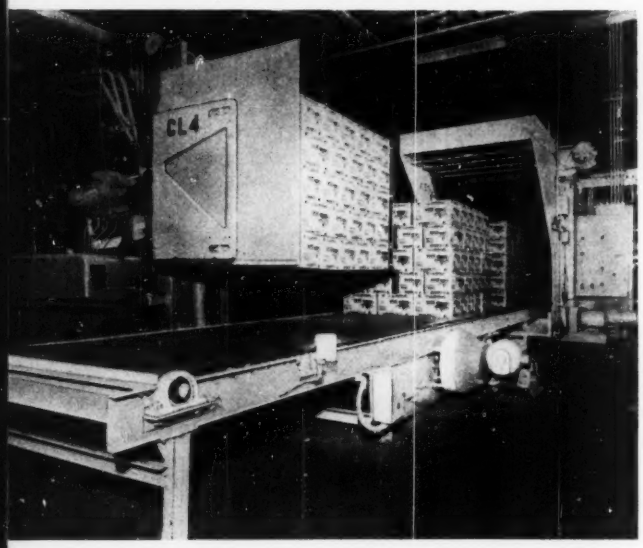
Rotated or not, as the pattern dictates, cases moving in on the master conveyor are formed into a row which is rammed off the conveyor onto a stripper plate. This action is repeated in pattern until a layer of three or more rows is formed. As each layer is completed, a side closer and pneumatic package-stop move in to square up the layer, then return to position. The stripper plate then retracts and the entire layer is wiped off onto a lowering mechanism beneath. This action is repeated until an entire load has been reached. No pallets or other unitizing techniques are used to keep the load in its orderly arrangement. The load is indexed out of the machine on a discharge belt for grab-truck pick-up while the lowering device moves into position under the stripper plate to receive the next load.

The conveyor onto which the finished loads are indexed is equipped with two sets of photo-electric cells. When their beams are broken, indicating either a full conveyor or a grab truck in the way, indexing is automatically stopped until the beam again indicates a clear conveyor. This prevents the possibility of an uncollected load being pushed off the conveyor by an incoming load.

Loads are neatly stacked by truck up to 30 ft. in height in the warehousing area.

Libby's intricate system is adaptable to many smaller plants where floor space is a problem.

Full load, *all of one product, emerges from belt conveyor (background), is picked up by grab truck for warehousing or shipment. No pallets or other unitizing techniques are required. Photo-electric cells automatically shut down indexing of further loads if conveyor is full, preventing uncollected loads from being shoved off the conveyor by incoming cases.*



SUPPLIES AND SERVICES: Vertical case sealers by Midnight Engineering Co., 701 S. La Salle St., Chicago 5. Conveyors and automatic stackers by Lamson Corp., 499 Lamson St., Syracuse 1, N. Y.

Childproof closure

How aspirin is made safe from tots with ingenious two-part plastic cap that requires downward pressure on interior plastic spring to engage threads for removal

Two simultaneous motions *necessary to remove cap are described in molded red lettering on white closure. Children under six years can rarely coordinate these motions to remove the closure.*

A new type of safety cap, designed to prevent small children from opening bottles containing drugs, has been introduced on a package of flavored aspirin for children by Howe & Co., Seattle, packagers and distributors of drug products, with excellent consumer response.

When a child tries to open this bottle, the top part of the cap turns endlessly, but it will not unscrew. When an adult wants to open the bottle, he presses the cap down according to directions and removes it the same as any other screw cap.

This safety lock is accomplished by a mechanism hidden between the shell-within-a-shell construction. Essentially this consists of two interlocking molded lugged caps—an inner threaded one of styrene-acrylonitrile and an outer one of high-density polyethylene. When fitted one within the other, the complete assembly looks like any standard screw cap. Inside, two plastic leaf springs molded in the top of the inner cap separate the two members. When these springs are compressed by pushing down on the top of the closure, the matching lugs immediately engage to act as a ratchet.

Children under six years of age cannot remove this cap because, according to child psychologists, they rarely can coordinate the necessary two motions simultaneously. In field tests before the cap was released, the efforts of nearly 500 children to remove the cap almost always ended in frustration.

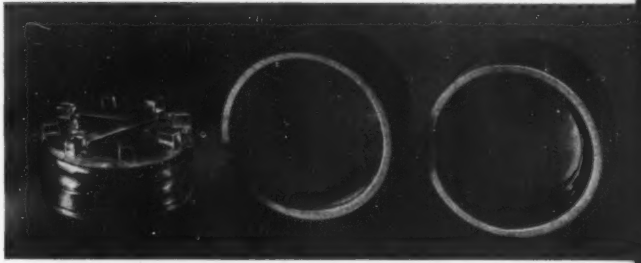
The molding considerations are unusual. A special styrene-acrylonitrile compound was selected as the material for the inner shell because of its rigidity, necessary to effect a sound seal, combined with sufficient flexibility for the spring action and its high torque strength. Good dimensional stability and sufficient elasticity to snap over the inner cap were among the reasons for the choice of high-density polyethylene for the outer cap.

The new closures can be applied by standard capping machines, although slightly increased pressure is needed when the cap is screwed in place to lock the two sections together.

The need for this precautionary packaging is well established by vital statistics. Reportedly 422 children under six years of age died last year in this country alone as the result of accidentally taking harmful drugs in the home.

SUPPLIES AND SERVICES: Caps supplied by Brockway Glass Co., Brockway, Pa.; molded by Pfaff Tool & Mfg. Co., Kearney, N.J., using C-11 styrene-acrylonitrile and DMD-7004 high-density polyethylene by Union Carbide Plastics Co., 270 Park Ave., New York 17. Design by Edward J. Towns, Livingston, N.J.

INNER SHELL **OUTER SHELL** **COMPLETED CAP**



Hidden mechanism *is revealed when two shells are separated. Leaf springs on inner shell (left) keep the molded interlocking lugs from engaging until pressure is exerted on top of outer shell (center). Assembled closure (right) looks like any standard screw cap.*

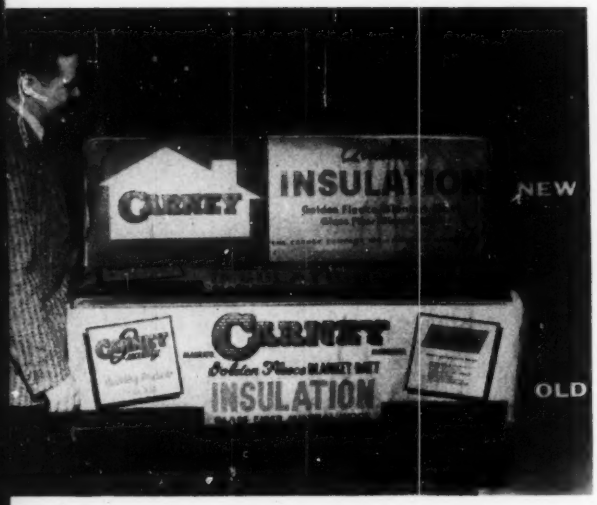
Polyethylene jug saves 25%

There is no question that the dramatic sweep of blown polyethylene bottles through the light-duty liquid-detergent field (and more recently making an impact on household bleaches) is only the beginning of an incalculably brilliant future for one of the recent past's most significant packaging developments. Producers of an increasingly broad variety of liquid products are beginning to show great interest in these lightweight, low-cost plastic containers.

One recent application that indicates the potential is the adoption by Onox, Inc., San Francisco, of a 1-gal. blown polyethylene jug for liquid fungistatic solution. The product is used as an athlete's-foot preventative in communal shower rooms. According to the packager, the new square-shaped plastic jug not only saves storage space, but reduces weight and freight charges 25% compared with a cylindrical glass container formerly used. The company also reports that the resilient polyethylene jug eliminates freight claims and the danger of breakage in use. The plastic container is topped with a twisting metal closure. *Surface design by Helen Faibish, 333 Kearny St., San Francisco.*

Cost Cutters

'Air-hatch' bag vent speeds loading and cuts damage

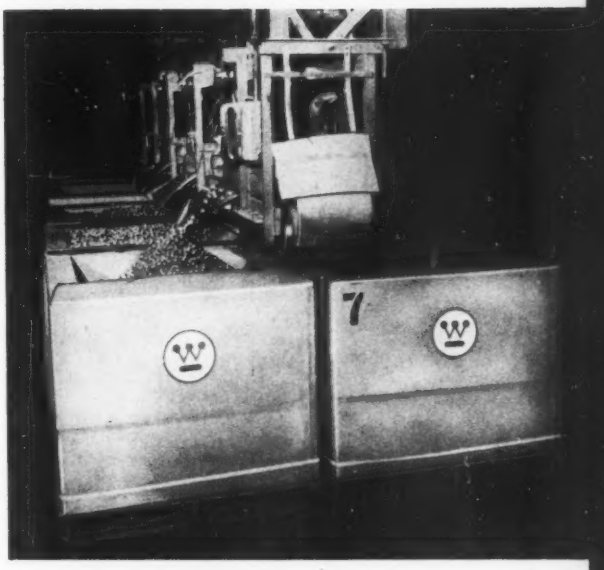


A simple functional improvement in a multiwall kraft shipping bag for insulative batting is paying dividends of economy and customer satisfaction to the Carney Co., Mankato, Minn. Because the batting—compressed from 36- to 15-in. thickness during packaging—expands to fill out the bag, it is necessary that trapped air escape through the walls to prevent the container from bursting at its seams. Over-all perforations on the company's former bag did not permit sufficiently fast air release. Even though the bag was packed very slowly to ease the process of space compensation, says Carney, seam rupture was a costly problem.

The solution, devised by the packager's supplier, is an "escape-hatch" flapped opening on the pre-sealed end of the bag. This opening is large enough to permit instant evacuation of air when the batting is inserted. As a result, Carney reports, packaging time has been reduced substantially and bag breakage has been virtually eliminated.

The company also has adopted a new surface design with sharp emphasis on brand and product data. *Bag and design by Union Bag-Camp Paper, 233 Broadway, New York 7.*

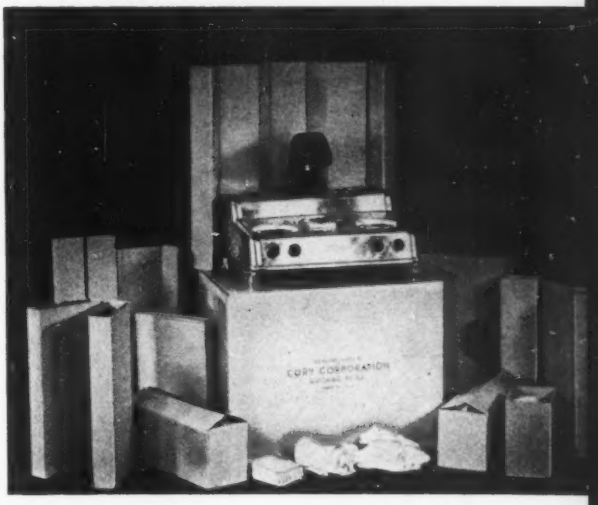
Triple-service shipper



At Westinghouse's Lamp Div. plant in Belleville, N.J., rugged triple-wall corrugated containers mounted on wooden pallets are performing triple duty—at big savings in overall packaging costs. The cartons, which replace wooden crates, are being used as receptacles and pouring bins for aluminum and brass light-bulb bases, as containers for interplant shipment and as storage units. According to a Westinghouse spokesman, the triple-wall corrugated containers represent a 90% saving in initial investment as well as a 40 to 50% reduction in tare-weight charges.

Testimony to the strength and durability of these lightweight multi-trip cartons is the company's report that they have far surpassed the three-month useful life originally projected for them. The majority of the first order of corrugated cartons is still in daily use after a full year's heavy-duty service, says the packager. Westinghouse also notes that the filled containers, each carrying a load of 732 lbs., can be stacked as many as four high without damage to the carton at the bottom. *Corrugated cartons by Tri-Wall Containers, 799 Washington St., New York 14.*

Cory upgrades interior packaging and cuts costs 33%

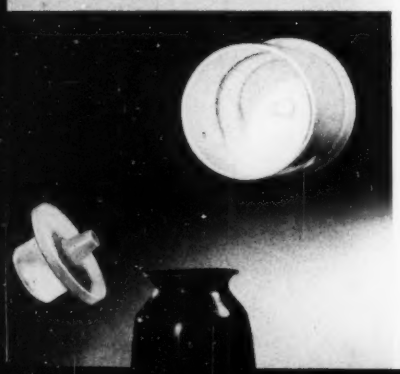


Packagers of fragile or otherwise delicate products who are seeking to cut down on container costs without impairing vital protective values might do well to look *inside* the package, to determine whether present interior cushioning systems are over-elaborate. A company which has done just that, with good effect, is Cory Corp., Chicago. In cooperation with its shipping-container supplier, the firm recently redesigned the die-cut and scored corrugated inserts which cradle institutional coffee makers against the bumps of transport and rough handling. The number of inserts has been cut from 21 to nine, for a reported cost saving of 33%.

In addition, says the company, packaging speed and efficiency have been enhanced by the smaller number of cushioning inserts now required. Tare weight also has been pared significantly. As the clincher, Cory reports that the streamlined interior packaging makes the shipper at least as protective as its predecessor. Damage claims are practically non-existent, the packager says. *Corrugated shipping carton and cushioning inserts by Gaylord Container Div., Crown Zellerbach, 111 Fourth St., St. Louis 2.*

Table-ready *bottle has opaque maroon high-impact polystyrene upper body, adhered with polystyrene cement to bottom similarly fabricated from standard transparent polystyrene to show product and warn of low level.*

Drop dispensing *is provided by insertion of a friction-fitting polystyrene closure (upper photo). No-drip lip of Sarson's new bottle (lower photo) is designed for convenient use of the container as a pouring decanter.*



Molded polystyrene bottle

Fabricated in two sections sealed with solvent adhesive, British vinegar decanter is a triumph of injection molding that suggests new possibilities for this material

Now appearing on the tables of British homes and public eating places is a graceful and colorful Grecian-shaped half-pint bottle for Sarson's malt vinegar that is more than just the first example there of direct-to-table vinegar packaging with a non-commercial look.

Fabricated in two sections (one opaque and one transparent) adhered together horizontally at the container's widest dimension, the new two-tone, maroon-pigmented bottle demonstrates these packaging achievements:

1. It represents a technical breakthrough in mass production of non-straight, taper-sided, injection-molded high-impact polystyrene bottles.
2. It is said to be the first use of polystyrene bottles for food products.
3. It reduces shipping weight 87.5% compared with glass.
4. Sales indicate the willingness of consumers to pay more—in this instance 20% more—for an attractive container that can be used on the dining table, even for such a low-priced household condiment.

Until now, most British brands of vinegar have been marketed in standard, unattractive pint or quart glass bottles for decanting, from which users often transferred the vinegar to cruets for table use.

The packager, Sarson, Ltd., of London, England, wanted to strike a completely new note in the brand-name vinegar market with an attractive, straight-to-the-table half-pint container, even though it had to sell at 20% more than its competitors. Consumer reaction seems to justify this decision.

Prevented by the bottle's shape from mass-production injection molding of the container in one piece, Sarson's supplier experimented with two-section designs, the upper part in opaque, high-impact polystyrene, the lower in standard transparent polystyrene, joined with a reverse overlap joint. Key to its success is said to be the development of a new adhesive combining polystyrene in a solvent. Applied in a thin film to both sections before they are joined, the adhesive is said to seal at high speeds, with the ring of adhesive hidden by the overlap of the top section. Cost of the bottle is said to approximate 8 cents, complete with the closure.

The new container is more than a decanter. With the insertion of a friction-fitting detachable polyethylene fitment supplied with the bottle, it becomes a drop dispenser. The bottle itself has a non-drip pouring lip.

Filling machines formerly used by Sarson for glass were adapted to the new bottles by a change of nozzles to match the diameter of the polystyrene neck. Bottles are filled at about 33 per minute. Caps are applied manually, pressed down mechanically. Bottle is labeled by hot foil stamping.

Although no more fragile in use than glass, the new container is said to have a shipping breakage factor virtually identical with glass. Success in fabricating this bottle and in containing vinegar in it suggests broad possibilities for other liquid as well as viscous food and non-food products.

SUPPLIES AND SERVICES: Impact-molded polystyrene bottles by Pioneer Plastic Containers, Ltd., Great South West Rd., Feltham, Middlesex, England.

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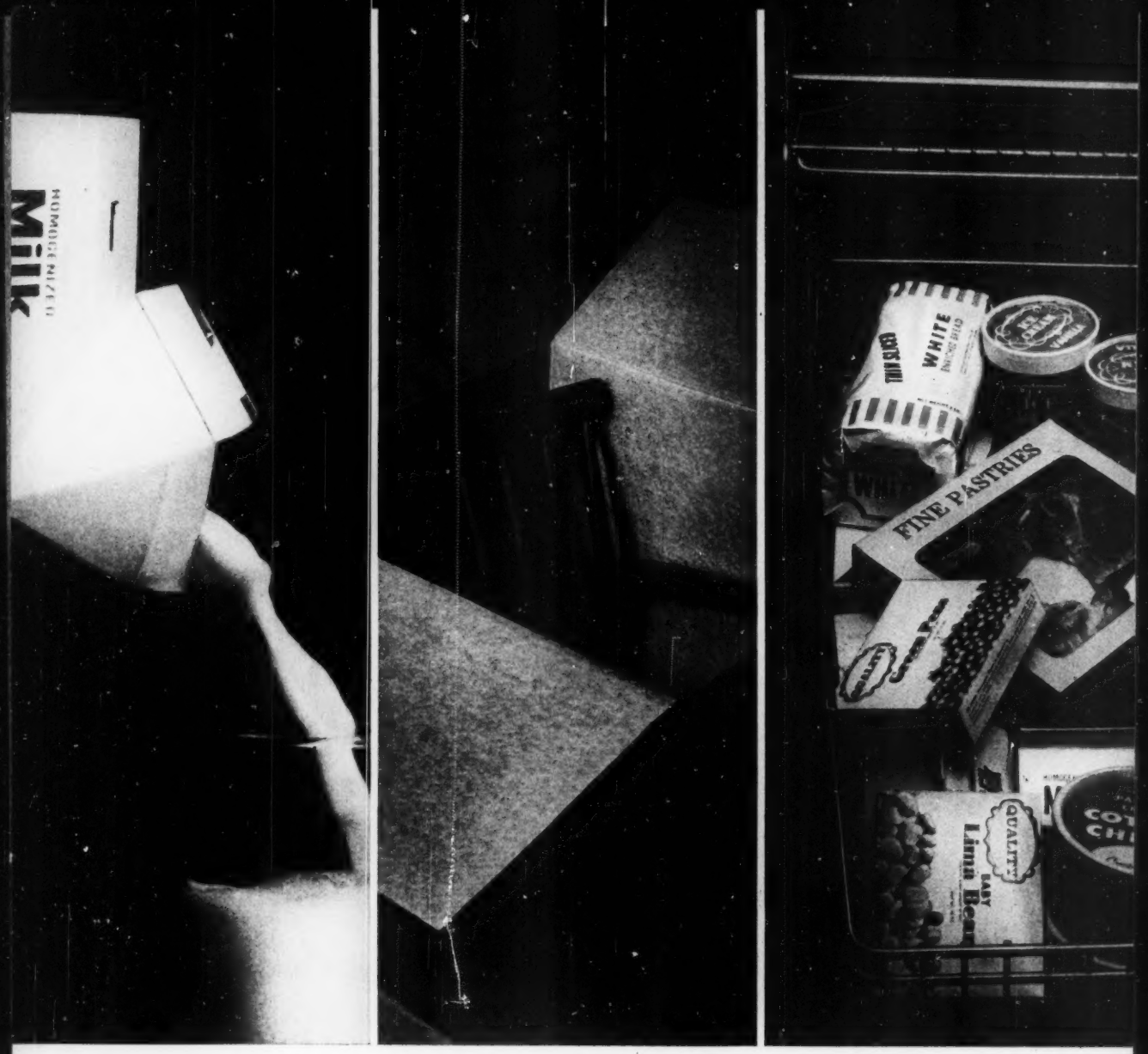

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Ultrasonic sealing of foil

A report from the aluminum manufacturer's viewpoint on this new technique, now being used in foil splicing, which may have wide application in packaging. By John H. Alden*

One of the most exciting things about packaging is that it doesn't stand still. New methods of assembly are under constant study. We have mechanical seals, "glues," waxes, hot-melts, heat-sealable coatings and plastic films. In packages containing aluminum foil, we may some day add ultrasonic welding to the present methods useful for sealing flexible, semi-rigid and rigid aluminum foil or sheet packaging containers.

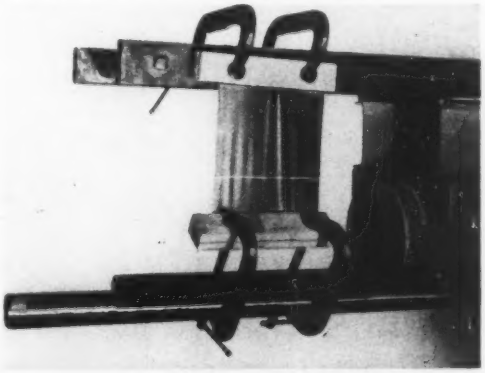
It has already been adequately demonstrated, as discussed in this article, that aluminum foil can be welded by this method. Preliminary work also indicates that aluminum laminates, when sealing foil surface to foil surface, have a high feasibility rating in respect to this technique.

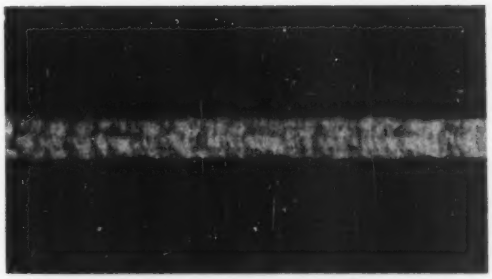
As with all such developments, first steps always come first. The possibilities, logically, were first explored with plain aluminum foil and applied to an important industrial problem, the commercial ultrasonic splicing of foil. This paper covers the potential first phase of applying this new concept to ultimate use in the area of packaging.

*Research & Development Committee, Aluminum Co. of America, Pittsburgh 19, Pa.

A few words should suffice to explain the basic principle behind the concept of ultrasonic welding. Ultrasonic or super-sound waves are focused at the interface of the aluminum surfaces to be joined. The induced vibrations at this interface mechanically break up the natural oxide film. This permits metal-atom-to-metal-atom contact and as a consequence produces a metallurgical bond. Metal de-

Figure 1. *Dead-weight demonstration shows the strength of ultrasonic splice in aluminum foil. Magnified photo shows details of the weld splice.*





Authorities agree that heatless sealing with ultrasonics may soon be applied at the packager's level, not only to aluminum-foil packages, but to plastic sheet and film. A general article on this subject will be found starting on p. 100 of this issue. The article here explains the principles behind this radical new technique and follows its development up to present commercial applications for the splicing of rolls in aluminum foil mills.—Ed.

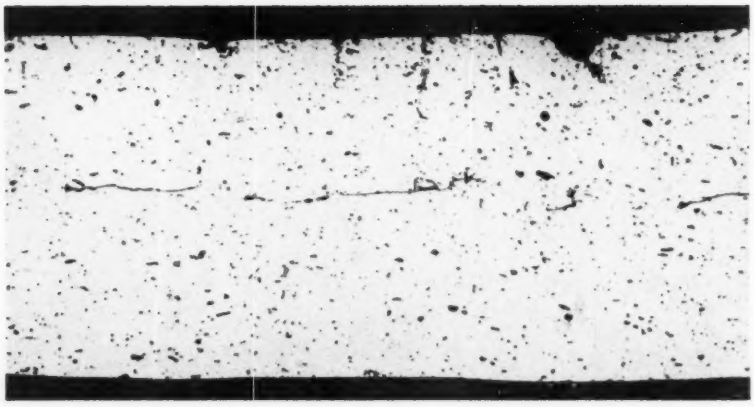


Figure 2. *Photomicrograph at 500 diameters of a typical ultrasonic weld splice in foil. This is 1145-H19 aluminum alloy foil 0.0025 in. in thickness.*

formations of less than 1% are required, whereas some 50 to 60% deformation is necessary in the pressure-welding process. Excessive deformations produce high stress areas, thus imposing a limit on joint design. Ultrasonic welding does not produce such regions, thus producing high-efficiency welds, as is pointed out in this paper.

Requirements of foil

The manufacture of aluminum foil involves various operations, depending upon its intended end use. It is rolled to its final thickness on either two-high or four-high rolling mills which produce a work-hardened material in widths up to more than 5 ft. Finished widths desired by users for specific products are produced by a subsequent shearing operation in which the foil is wound into coils on tubes for shipment. Any break in the foil occurring during previous manufacturing operations is joined or spliced together in this shearing operation to produce a longer continuous web.

Thinner gauges of foil are usually rolled in two strands or plies at a time through the rolling mills, this product being called "pack-rolled foil." Pack-rolled foil can be readily identified because it has one shiny side—the side which contacted the rolls. The other side which contacted the other ply during rolling has a dull or matte finish.

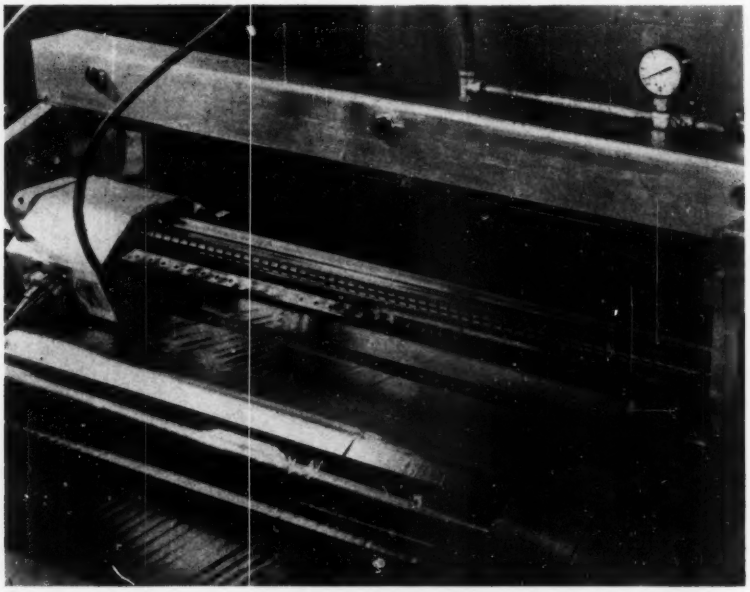


Figure 3. *The first small-diameter ultrasonic welding head used in Alcoa foil mill.*

The shearing operation has in reality three distinct and separate functions:

1. The aluminum foil is sheared into suitable widths to fit the end-use requirement.

2. The ends of discrete webs are spliced together as necessary during the operation.

3. In pack-rolled foil, the plies are separated but, in any case, each foil web is wound onto a separate roll for later annealing and delivery.

A satisfactory splice of the ends of foil during this operation, whether it be to repair breaks in the web or to produce longer lengths, is important because the splice must withstand later operations in the foil-manufacturer's plant or in the plant of the user of the aluminum foil.

A number of methods have been employed for splicing, the two generally used being embossing or adhesive bonding. Embossing or crimping is prone to weaken the foil and also to make a conspicuous splice whose strength is in many cases inadequate for end-use requirements.

Adhesive bonding, which has been more commonly used, also has a number of disadvantages, including the fact that a very high degree of operator skill is required to obtain a good joint and at the same time to avoid splattering the foil with adhesive or letting it run over the edges to cause the various layers of the foil to stick together. Furthermore, there are adhesives which form a strong bond immediately after application but are weakened in subsequent annealing operations, while others have little strength until they are sensitized by the heat of the annealing operation. Adhesives also tend to reduce electrical conductivity, a desirable property in certain new applications for foil.

Subsequent processing of the foil for end-use applications such as laminating to paper backing, cigarette packages, chewing-gum wrappers and the like, or for decorative printing requires that the foil be run through high-speed equipment. Breakage of a weak splice creates complicated and expensive problems resulting in down time of the equipment and reduced production. Shutdown of a coating apparatus involving wet ink or lacquer may entail hours of expensive down time. Thus, breakage of the metal foil can be exceedingly costly.

The optimum splice in a roll of aluminum foil is a metallurgical junction which is inconspicuous, of high reliability, very low deformation and one that is uniform from edge to edge. The metal joining process should be largely independent of foil surface condition, should be performed quickly and reliably, and should not require a high degree of operator skill. Moreover, a minimum of wrinkles or evidence of unequal tension after splicing is required, since unequal tension may subsequently introduce failure in the web. Thus, it is necessary that the web of aluminum foil be carefully positioned and smooth during the making of the splices.

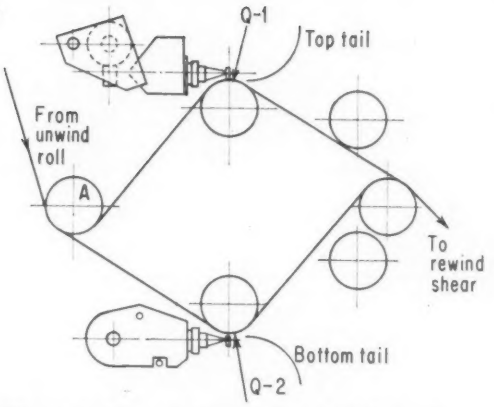


Figure 4. *Operational sequences for threading and splicing pack foil through ultrasonic welding equipment. Individual plies are coiled on rewind side of shear.*

The ultrasonic splicer

All of the above requirements are fulfilled by the ultrasonic foil splicer developed by Aeroprojects, Inc., of West Chester, Pa., for the Aluminum Co. of America. A dead-weight demonstration of an ultrasonic splice in aluminum foil as well as an enlarged photograph of a weld splice are shown in Figure 1. Figure 2 shows a photomicrograph of a typical ultrasonic weld splice in foil.

The ultrasonic junctions are metallurgically sound, reliable and inconspicuous. Their integrity is unaffected by annealing and subsequent operations and they provide good electrical conductivity. Moreover, ultrasonic splices are free from pinholes and create no break in the vapor barrier. The ultrasonic equipment which has been developed for splicing will simultaneously splice the two separate plies of pack-rolled foil, or the equipment can be used on a single strand of aluminum foil.

Development program

About five years ago, Alcoa began to consider the possibility of splicing aluminum foil by means of ultrasonic welding,[1] having purchased from Aeroprojects the first ultrasonic spot-type welding equipment sold anywhere in the world. Our engineers suggested that this method offered the possibility of solving the long-standing and exasperating problem of splicing aluminum foil.

In discussions with Aeroprojects' technical people, it was found that a roller-type continuous seam-welding unit was available. Evaluation at Alcoa Research Laboratories of samples made on this equipment led to the conclusion that ultrasonic foil

[1]See U. S. Patents Nos. 2,946,119 and 2,946,120.

Table I: Tensile strengths of ultrasonically welded 1145-H19 aluminum foil

		Parent foil		*Welded foil**		*% of tensile strength of parent foil*
Thickness in inches	*No. of tests*	*Tensile strength p.s.i.*	*% elongation in 4 in.*	*Tensile strength p.s.i.*	*% elongation in 4 in.*	
0.001	4	26,100	2.8	24,750	1.5	94.6
0.0007	4	26,100	2.8	24,620	1.4	94.5
0.0003	4	24,800	2.0	24,700	1.1	99.5

NOTE: Tests performed in Schopper tester. Sample 10 in. long by ½ in. wide. All failures occurred at weld.
*Test made on welded joint perpendicular to weld.

splicing would be practical if associated problems could be solved. The decision was made to undertake a cooperative program with Aeroprojects aimed at developing practical production types of equipment and placing them in operation in Alcoa foil mills at the earliest possible date.

The first stage in the program was to design, fabricate and test a small-diameter ultrasonic roller seam-welding head and incorporate it in a machine designed to splice single-ply foil only. Important problems were the positioning, tensioning and smoothing of the foil webs for welding. This first unit processed 25-in.-wide foil and was installed on a pilot basis at Alcoa's New Kensington, Pa., foil mill. The first small-diameter welding head is shown in Figure 3. Tensioning of the foil was accomplished by two perforated rollers through which a vacuum was drawn, causing the foil to cling to the roller. Slow rotation of these vacuum rolls tensioned the aluminum foil, aligned it and cleared it of wrinkles in the splice area.

Successful splices were made in aluminum foil thicknesses ranging from 0.00017 to 0.003 in. One test coil of 0.00035-in. foil purposely prepared with 28 splices in the coil was subsequently annealed and laminated to paper. Unlike many adhesive splices, the ultrasonic splices passed through the laminator with no difficulty and many of them were not even detected by the operator.

Improvements in various features of the equipment resulted in the ability to produce joints having substantially the full strength of the adjacent foil, with no softened area near the weld. The welded lap seam was about 0.040 in. wide. Typical mechanical-property results on various lots of ultrasonically spliced aluminum foil are shown in Table I. Ultrasonic splices made using today's techniques are expected to have strengths considerably greater than 90% of the parent metal strength.

A number of coils were prepared containing ultrasonic splices to permit field testing in the plants of several of Alcoa's customers. These were enthusiastically received. Customers reported that the ultrasonic splices were far superior to other splices and that ultrasonic splices would withstand their converting or processing operations without failure. These results convinced us that we had a strong,

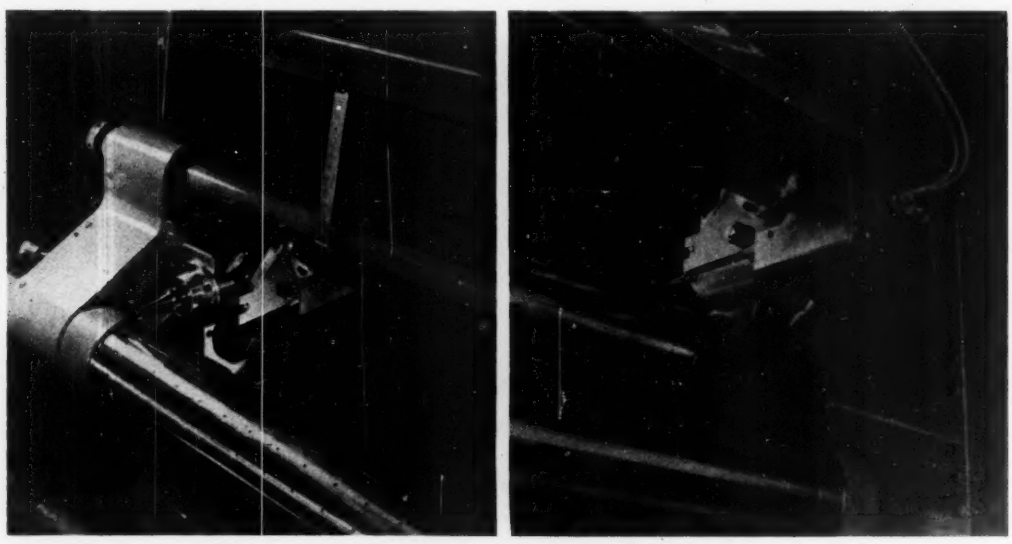


Figure 5. *Two views of ultrasonic welding head used in pilot pack-foil splicer, showing (at left) spring-clamping force adjustment for different gauges of foil and (right) photocell sensing system which controls the ultrasonic welding interval.*

high-quality splice that would eliminate the difficulties and uncertainties of previous types of splices such as those made with adhesives.

The next step was the development of an ultrasonic pack-foil splicer to provide a piece of equipment suitable for splicing the thinner gauges of aluminum foil generally rolled in pack form.

Pack-rolled foil coming from the rolling mill to the separating and shearing operation has the two plies back to back. It was necessary, therefore, for the pack-foil splicer to separate the plies, weld each ply separately, remove the tails and further process the aluminum foil through the rewind portion of the shearing operation into the final coils which are subsequently annealed.

Several possible arrays of the various splicer components were developed. Figure 4 shows the operational sequences for threading and splicing the pack foil through the splicer equipment. The internal tails are removed, using a tear bar, as the individual plies of the aluminum foil are coiled on the rewind side of the shear.

The first splicer designed for handling 25-in.-wide pack-rolled foil incorporated improved ultrasonic welding heads, a precision tear bar for removing the tails and other refinements. It was installed in Alcoa's New Kensington foil plant and operated for several months on pilot production for trials of ultrasonically spliced foil by Alcoa customers. Again, customer reaction was favorable.

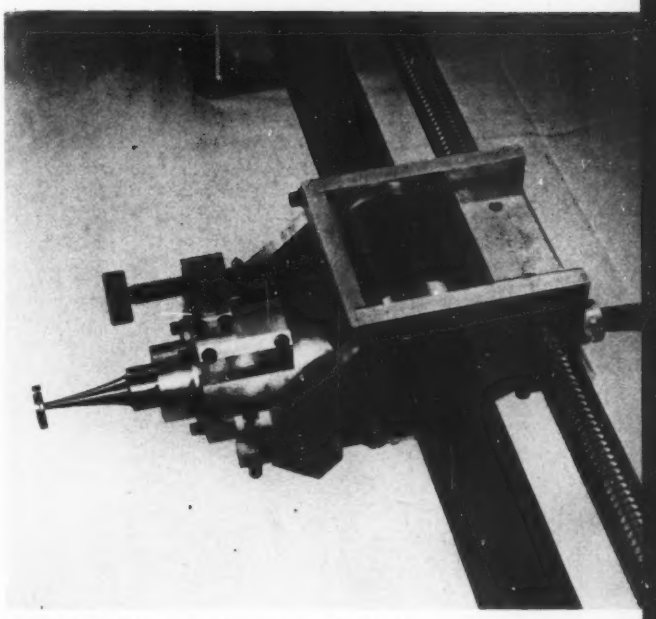


Figure 6. *Roller-seam ultrasonic welding head for final production pack-foil splicer.*

Production unit

The pilot pack-foil splicer unit provided a sound basis for the design of ultrasonic foil splicers for production installations in our mills. The first of these ultrasonic units was installed in the Alcoa New Kensington plant early in 1959.

Figure 5 shows two views of the ultrasonic welding head. The spring-clamping-force adjustment knob for different gauges of foil is shown in the illustration, as is the photocell sensing system which triggers the ultrasonic welding interval when the roller welding disk contacts the edge of the foil and cuts it off after the welding head has reached the opposite edge of the foil. The welding heads incorporate force systems calibrated in foil gauges, photocell switch gear and provision for temperature stabilization. Elmore force-insensitive mounts[2] and other precision features are incorporated in these heads, including exceedingly tight sealing to keep dust out of the system.

All Alcoa foil mills have at least one Sonoweld[3] pack-foil splicer. Alcoa also has under development other installation geometries adapting Sonoweld ultrasonic splicing equipment to various types of foil-processing machinery. All of these involve the roller seam-welding head shown in Figure 6.

Conclusion

Whereas this article concerns itself largely with the splicing of aluminum foil, it does suggest that the technology developed so far will undoubtedly be applicable to the sealing of flexible and rigid aluminum packages and containers.

More than two years of production service employing ultrasonic foil splicing have shown that this method meets the requirements of manufacturers and users of aluminum foil to a degree far beyond any attainable heretofore. Foil spliced in this manner is being made available over a wide range of Alcoa's foil products and is proving to be of great assistance to foil converters and to other foil users. Its advantages of making joints having up to 99% of the strength of the parent foil and which are small, smooth, inconspicuous and of a sound metallurgical nature gives ultrasonically spliced foil distinct advantage over foil spliced by other methods.

Furthermore, ultrasonic welding is applicable to a wide variety of aluminum alloys, requires no special cleaning of the foil and, in some cases, even performs through certain types of laminations. This is considered to be an important and distinctive contribution to the aluminum-foil industry.

[2]See U. S. Patents Nos. 2,891,178, 2,891,179 and 2,891,180.
[3]Trade name, Aeroprojects, Inc.

A new polymer for wax

Copolymer of ethylene and vinyl acetate shows remarkable properties as a modifier or extender of paraffin wax in typical package coatings. *By Lewis W. Blight and Donald C. Sutherland**

Recognizing the need for an improvement in ordinary wax coatings in modern packaging applications, the Electrochemicals Dept. of the Du Pont Co. in recent years has directed research efforts toward the development of a compound which would be specifically compatible with paraffin wax. From this research and development work came the new multipurpose copolymer of ethylene and vinyl acetate, known as "Elvax" vinyl resin.

Elvax is an amorphous, high-molecular-weight resin. It is compatible in all proportions with ordinary paraffin wax and can be used as an additive or modifier to improve wax coatings, or can be extended with paraffin wax to yield low-cost, easily applied, flexible, polymeric coatings.

Blends containing 30% or more of Elvax with paraffin wax as a diluent or extender are polymeric in appearance and characteristics, and are completely flexible. This flexibility is vividly demonstrated in Figure 2. Elvax/wax blends containing 30% or more of the resin can be applied as hot melts to give polymeric coatings on a wide variety of substrates. The coatings have the unusual property of retaining, even when creased, virtually all of the water-barrier properties of uncreased paraffin wax. Elvax also exhibits specific adhesive properties, so these polymeric coatings can be heat sealed to most packaging films and materials in use today.

In addition to its compatibility with wax, Elvax blends with many resin tackifiers, including rosins and rosin-derived resins, and can, therefore, be used as a base for unusual hot-melt adhesives. This article, however, is limited to a discussion of those uses pertaining to Elvax in flexible polymeric coatings and properties of the coatings.

Elvax vinyl resins are now available in development quantities and will become commercially available during the fourth quarter in 1961.

Current efforts for developing the use of Elvax vinyl resins for packaging applications are directed to (1) heat-sealable coatings for labels, loose overwraps and food cartons; (2) flexible water-vapor barrier coatings for multiwall bags, milk containers, locker wrap, frozen-food cartons and corrugated boxboard; (3) improved decorative wax coatings and laminated formulations to give strong bonds to waxed glassine, foil and cellophane; (4) improving the flexibility, toughness and heat sealability of wax coatings on frozen-food overwraps, glassine, bread wraps and sheet-waxed food cartons.

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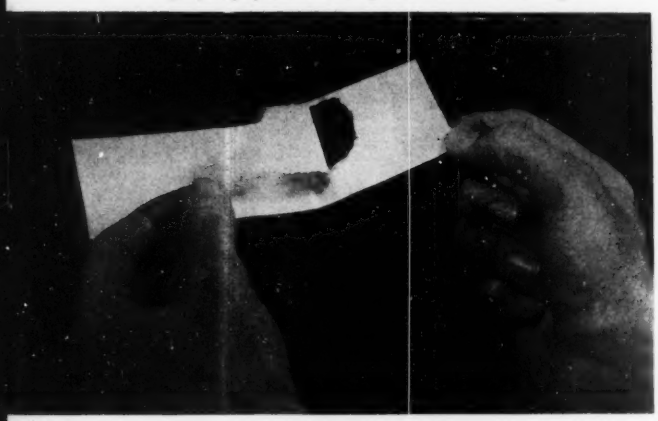
Figure 1. *Paper coated with Elvax vinyl resin/wax compound shows fibre-tearing bond when heat sealed to polyethylene film. Superior adhesion is outstanding property of this low-cost, WVT-resistant coating.*



Resin properties

Elvax is a copolymer of ethylene and vinyl acetate. Two grades, designated as 150 and 250, are currently available. The basic differences between grades are comonomer ratio and inherent viscosity. Elvax 150 exhibits better specific adhesive properties than does Elvax 250 and, when extended with an equivalent amount of wax, has a lower viscosity. The 250 grade, because of its higher molecular weight, contributes an improved toughness and flexibility when it is extended with wax and applied as a thin coating to various substrates.

Elvax resin is amorphous, thus does not have a true melting point. When heated, the resin continues to soften without ever becoming fluid; thermal decomposition occurs at approximately 400 deg. F. It is impractical, therefore, to use it alone. How-

How a unique Owens-Illinois model helped bring "glass cans" to brewers

Newest beer container on the market is what many call the "glass can," others such names as "Handy" or "Shorty" bottle. It combines the advantages of glass with the disposal convenience of cans. It's a glass bottle—yet lighter, shorter, more compact than any used previously. Already it is the largest volume item produced by glass container manufacturers.

This 3-piece adjustable model of a bottle played a big role in its development.

Owens-Illinois created the first no-return beer bottles in 1935. Since then they have successively devised ways to make them lighter and shorter.

To help them find the best shape to fit brewery processing lines, O-I engineers created the model. Experiments with it on various types of bottling equipment helped in deciding the final shape of the new glass bottle.

This is a typical Owens-Illinois approach. It illustrates why so many new and improved containers bear the mark of Owens-Illinois.

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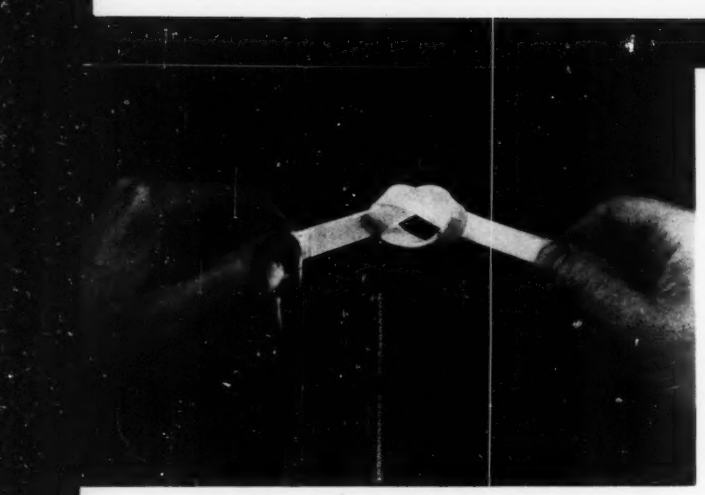


Figure 2. *Paraffin wax blended with 40% Elvax is so strong and flexible it can be tied in a knot.*

ever, paraffin wax, with which it is completely compatible, is an ideal low-cost diluent or extender and allows hot-melt blends containing 30 to 40% resin to be applied in thin films to a wide variety of different packaging materials.

Data showing the remarkable flexibility and toughness of these resin/wax blends are plotted in Figures 3 and 4. It can be seen from Figure 3 that even with 50% brittle paraffin wax the 250 blend can be elongated 160% before breaking takes place. Figure 4 shows that a 50:50 blend of Elvax 250 and paraffin has a tensile strength of 950 lbs./sq. in.

The high degree of compatibility of Elvax with

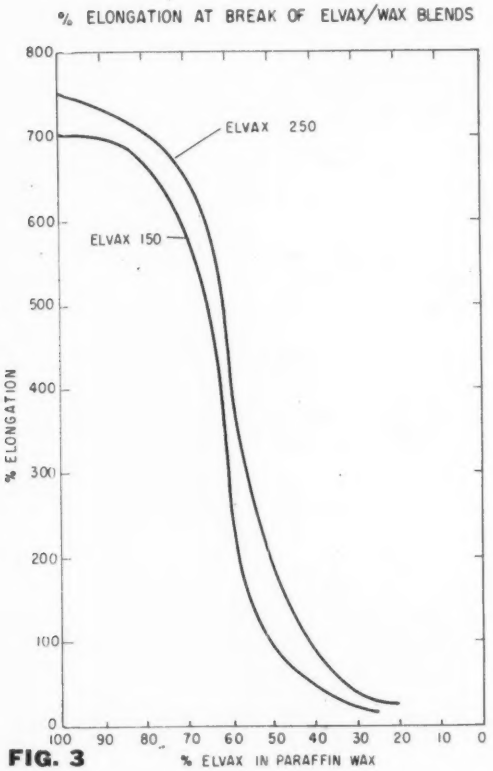


FIG. 3

paraffin wax is shown in Figure 5. In effect, the resin/wax blend does not begin to show a phase separation until the melt temperature drops to within approximately 10 deg. of the melting point of the wax itself.

The marked difference between the behavior of Elvax and that of low-molecular-weight polyethylene, a commonly used wax modifier, is also shown. The low haze or cloud point of Elvax/wax blends allows operation at much lower temperatures than are normally possible with most hot-melt systems. For example, flexible polymeric coatings can be applied effectively at temperatures of 200-250 deg. F. This minimizes oxidation of the wax and provides a wide margin of safety with respect to thermal decomposition of the resin. Also, the polymeric coatings produced have essentially the same blocking characteristics as the wax used in the blend.

The relationship of melt viscosity to temperature and polymer concentration in wax blends is given in Figures 6 and 7. It should be noted that melt viscosity increases logarithmically as the Elvax concentration of the blend is increased. Small increases in Elvax concentration result in substantial viscosity increases. For most coating applications, a range of 500-10,000 centipoises is typical for 30:70 and 40:60 blends containing Elvax 150 and a range of approximately 1,000-20,000 centipoises for similar blends containing Elvax 250. These viscosities are suitable for operating temperatures of 200-300 deg. F. Selection of operating temperature is largely contingent on coating equipment used. The different methods for applying blends containing 30 to 40% Elvax are discussed later.

Properties of coatings

Coatings made from Elvax/wax blends containing 30 to 40% resin are colorless, transparent, nontacky, glossy and completely flexible, and are suit-

Table I: Typical analyses of Elvax vinyl resins

	Elvax 150	*Elvax 250*
Inherent viscosity at 30°C. (0.25% by wt. in toluene)	0.78	0.85
Comonomer ratio ethylene: vinyl acetate, wt. %	67:33	71:29
Melt index (ASTM D-1238-57T)	25	15
Odor	Slight	Slight
Tensile strength, p.s.i.	1,000	2,000
Elongation at break, %	700	750
Density, gm./cc. at 30°C.	0.95	0.95
Refractive index, N_D^{25}	1.485	1.482
Softening point (ring and ball), °F.	243	276

able for a wide variety of different packaging uses. Chief among these packaging uses is the function of the coating as a water-vapor barrier which has specific adhesive properties.

Water-vapor-barrier properties. Table II contains data based on a series of coating trials in which various blends of Elvax and paraffin wax were applied to several different paper substrates. An 18-in. hot-roll kiss coater, shown in Figure 8, was used for the coating applications.

The data show the very low water-vapor-transmission rates of paper coated with Elvax/wax blends both before and after the paper is creased. Tests were made at 90% R.H. and 100 deg. F., using standard TAPPI procedures. With the pigment-coated and more highly finished papers, very little if any change in WVTR occurred after creasing. For example, sulfite bread-wrap and pouch stock with 1-mil coatings of Elvax 250/wax blend had water-vapor-transmission rates of 0.2 gm./100 sq. in./24 hrs. before creasing and 0.3 gm. after creasing. Even the coatings on the 50-lb. and 60-lb./ream unbleached natural kraft showed exceptionally good retention of barrier properties after creasing. The WVTR values range from 0.2 to 0.4 when flat and from 0.5 to 0.7 after being creased.

Table II gives a comparison of WVTR for unbleached kraft paper coated with similar weights of extrusion-laminated, medium-density polyethylene and a blend of 40% Elvax 250/60% paraffin wax (143-145 deg. AMP). The flat WVTR was 0.2 gm. with the Elvax coating, compared with 0.8 for the polyethylene coating. The creased value remained unchanged with the polyethylene, but increased slightly to 0.5 with the Elvax blend.

The coating weights given in Table II represent a film thickness of 1 mil or slightly more. Good water-vapor-barrier properties, both flat and creased, can be obtained at lower coating weights. Exactly when film discontinuity begins and creased WVTR values correspondingly increase appear to depend to a large degree on the substrate's surface characteristics. More highly finished papers allow better film continuity and less wicking at lower coating weights than do less dense, unfinished substrates.

In addition to the substrates cited in Table II, a number of other packaging materials have been successfully coated with Elvax/wax blends.

In several coating evaluations, the Elvax blend was applied over a printed surface. There was no indication that there is any problem with adhesion to surfaces covered with conventional printing inks. Although no testing has been done to date by printing over Elvax-coated surfaces, these resin/wax blends are solvent soluble (e.g., in toluene and benzene at room temperature) and it should be possible to formulate suitable inks for satisfactory printing if it is necessary to apply the coating to the substrate material in web form.

In the new coating procedures now being evaluated, Elvax blends can be applied to pre-printed carton blanks, corrugated sheeting and other non-flexible packaging materials.

Elvax coatings are glossy; high gloss is achieved

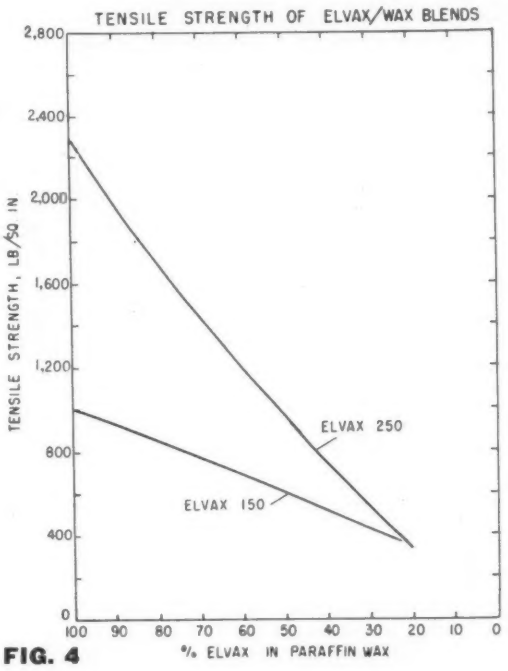


FIG. 4

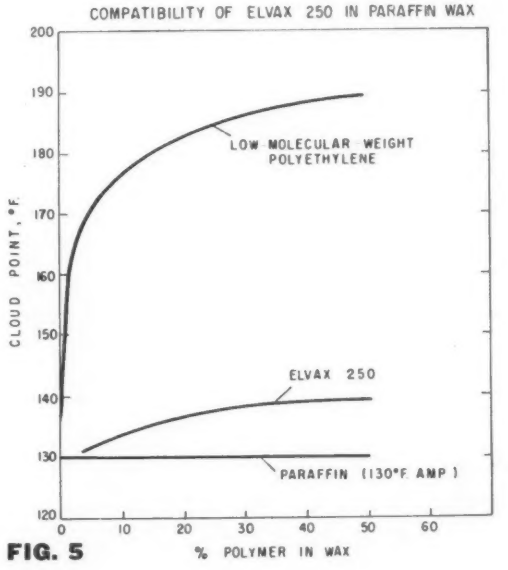


FIG. 5

Table II: Water-vapor transmission rates for various Elvax-coated papers

Paper substrate	Paper weight, lb./3,000 sq. ft.	Coating composition: Elvax Grade	Elvax %	Paraffin wax %	Paraffin wax AMP	Coating weight, lb./3,000 sq. ft.	WVTR,[1] gm./100 sq. in./24 hr.: Flat	Creased[2]
Pigment-coated sulfite bread wrap	25	150	40	60	145-150°	15.1	0.4	0.4
"	25	250	40	60	145-150°	15.5	0.1	0.3
"	25	250	40	60	143-145°	15.2	0.2	0.3
"	25	250	30	70	143-145°	14.9	0.2	0.3
Sulfite	25	—	—	100[3]		13.0	0.7-2.0	9.0-12.0
Sulfite pouch stock	25	150	40	60	145-150°	12.6	0.2	0.4
"	25	250	40	60	145-150°	16.3	0.2	0.3
Unbleached kraft	50	150	40	60	145-150°	16.3	0.2	0.7
"	60	250	40	60	145-150°	15.0	0.4	0.6
Pigment-coated, bleached kraft	60	150	40	60	145-150°	14.7	0.2	0.5
Unbleached kraft	40	250	40	60	143-145°	16.9	0.2	0.5
"	50	Medium-density polyethylene				17.6	0.8	0.8

(1) TAPPI T464 m45, 100°F. and 90% R.H.
(2) TAPPI T465 sm52; creases 0.75 in. apart, giving 2.54 in. creased lines/sq. in. of surface.
(3) Hocking, G.M., Paraffin Waxes, Part I, *Paper, Film, and Foil Converter* 29 (Nov., 1955).

Table III: Heat-seal bond strength of Elvax-coated paper

	Elvax 150		Extruded low-density polyethylene
Coating compositions			
Polymer, %	30	10	100
Paraffin wax (143-145° F. AMP), %	70	60	0
Coating weight, lb./3,000 sq. ft.	16	15	14
Blocking, temp., °F.	130	130	140
Grease resistance, hrs. to penetration (peanut oil)	112	143	200
Heat-seal bond strength, gm./in.[1]			
Coated paper[2] sealed to:			
Paper	410	470	280[3]
Aluminum foil	255	300	170
K-cellophane	235	300	10
Mylar polyester film	220	260	23
Polyethylene film	300	335	250[3]

(1) Determined by delamination of strips 6 by $\frac{1}{2}$ in. on Instron tensile tester, using crosshead speed of $\frac{1}{2}$ in./minute.
(2) Standard 25 lb./3,000 sq. ft. sulfite bread wrap.
(3) Only these laminations showed fibre tear. All of the Elvax coatings delaminated with fibre tear.

by immediate and drastic chilling of the coating after application. One apparent deficiency of the coatings should be discussed. When extended with ordinary paraffin wax, there is a tendency for Elvax coatings to show a "blooming" effect or poor gloss retention, which is characteristic of most wax coatings. However, it has been observed that when Elvax coatings are remelted and recrystallized, the resulting gloss is both outstanding and permanent. The mechanism of this gloss stabilization and the variations in gloss retention resulting from use of different types of waxes in the coating blends are now being investigated.

Preliminary studies already made indicate that incorporating small amounts of synthetic waxes or some microwaxes in the blends stabilizes the gloss.

Heat-sealing properties. The specific adhesive properties of Elvax allow substrates coated with unmodified blends of Elvax and ordinary paraffin wax to be heat sealed to materials which are normally resistant to heat sealing. Among these are aluminum foil, K-type (polymer-coated) cellophane, Mylar polyester film, and coated and uncoated polyethylene film. The coatings are in no way different from those discussed as water-vapor barriers. They are

Table IV: Heat-sealing conditions

Elvax-coated paper sealed to:	40% Elvax 150/60% paraffin wax: Temp., °F.	Pressure, p.s.i.g.	Time, sec.	30% Elvax 150/70% paraffin wax: Temp., °F.	Pressure, p.s.i.g.	Time, sec.	Extruded low-density polyethylene: Temp., °F.	Pressure, p.s.i.g.	Time, sec.
Paper	255	50	0.5	230	30	0.5	250	30	2
Aluminum foil	280	30	2	200	30	0.5	250	30	2
K-cellophane	280	50	1	280	50	1	250	30	2
Mylar polyester film	200	30	0.5	200	30	0.5	250	30	2
Polyethylene film	230	30	2	230	30	2	250	30	2

nontacky and flexible, and have essentially the same blocking temperature as the wax used in the blend. The heat-sealing temperatures required are substantially below the melting points of the films involved.

Table III gives an evaluation of typical heat-sealable coatings, approximately 1-mil thickness, applied to standard pigment-coated, 25 lbs./ream, sulfite bread wrap. Coatings of 30% and 40% Elvax 150 blended with paraffin wax (145-150 deg. AMP) were applied and the paper then sealed with a Sentinel heat sealer to the various packaging materials designated. The bonds were delaminated on an Instron tensile tester. In each case, fibre tear occurred before delamination took place. A comparison was made with a similar-weight coating of extrusion-laminated, low-density polyethylene heat sealed to the same materials. Fibre tear occurred only with paper-to-paper and paper-to-polyethylene-film laminates. Other bonds showed poor adhesion.

Table III shows the degree of grease resistance which these coatings impart. The resistance, given in hours to penetration by peanut oil, is about four times that of a two-sided, 100% wax coating of the same total weight on the same paper. However, this improvement occurs at about 5% concentration of Elvax in a coating and does not increase appreciably at higher concentrations. The resistance values given in Table III appear to be typical for coatings containing Elvax in excess of 5%.

Conditions used for heat sealing are given in Table IV. The dwell times given are not critical and can be varied by changing temperature. In several trials already made, Elvax coatings have performed satisfactorily on commercial heat-sealing equipment. In addition to the packaging material already mentioned, Elvax coatings can also be heat sealed to cellulose acetate, oriented polystyrene and polypropylene films. With these films, however, it is usually necessary to improve the bond strength by including microcrystalline wax or a resin tackifier such as stabilized wood rosin in the blend.

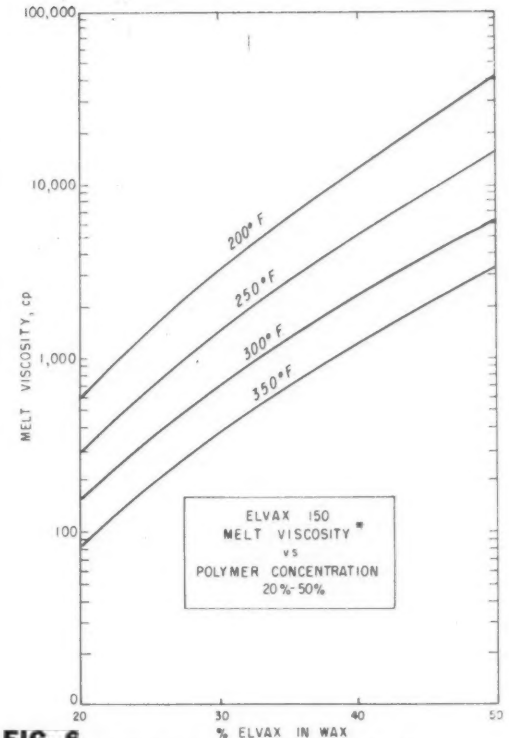


FIG. 6 * DETERMINED WITH CALIBRATED FENSKE-OSWALD VISCOMETER PIPETS

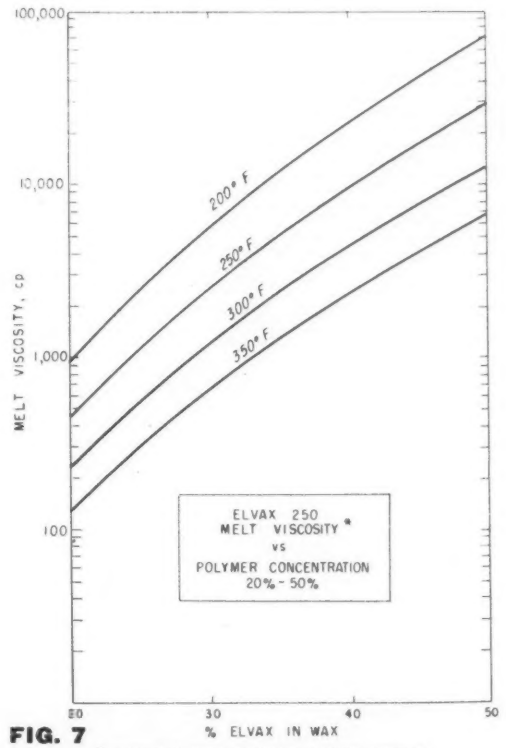


FIG. 7 * DETERMINED WITH CALIBRATED FENSKE-OSTWALD VISCOMETER PIPETS

Coating methods

Several methods for applying flexible polymeric coatings containing Elvax to a wide variety of substrates have been explored. The coatings are applied from a hot-melt system in which Elvax is extended with paraffin wax and/or other low-viscosity compounds with which it is compatible.

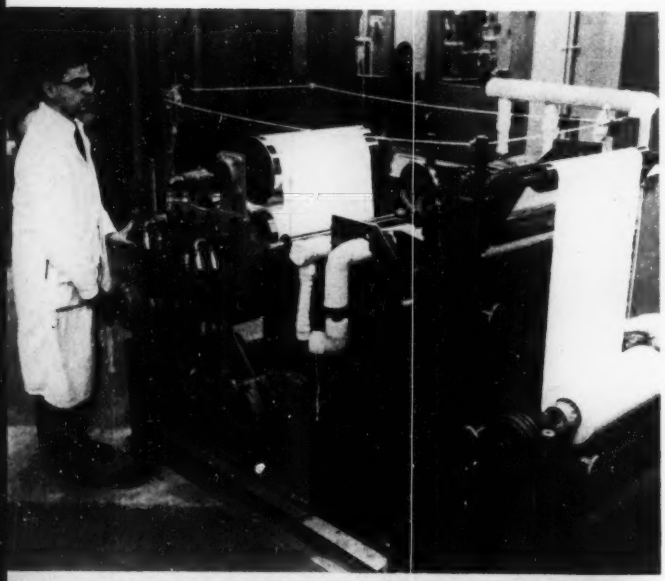
These blends can be readily prepared in high-sheer mixing equipment, either of the sigma blade kneader or high-speed dissolver type. The homogeneous blends can be stored in the molten state and piped directly to the coating equipment, or can be slabbed and remelted for subsequent use.

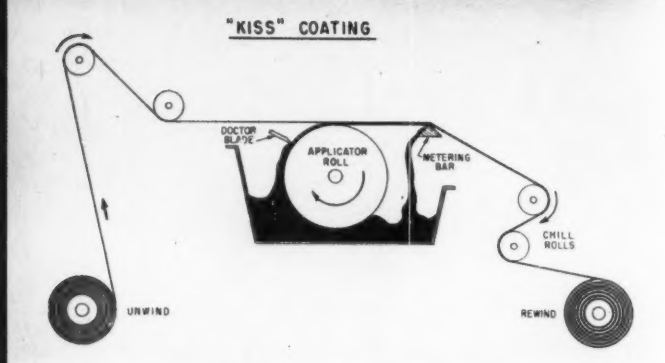
Hot-roll "kiss" coating. A schematic diagram of

the hot-roll kiss-coating method is shown in Figure 9. The substrate to be coated kisses directly off the top of a smooth, heated applicator roll driven in the direction of the web. The applicator roll picks up an excess of the coating composition from the heated pan and transfers most of this excess to the substrate which immediately thereafter passes over a heated metering bar or wire-wound rod where the excess melt is removed. In some applications it may be necessary to employ a reverse-driven, heated smoothing or polishing roll to remove any pattern effect imparted by the metering device.

Immediately after leaving the metering bar (or smoothing roll) the substrate passes over a polished, water-cooled chill roll, with its coated side in direct contact with the cold metal surface. Additional chill rolls may be required for adequate heat removal at high speeds. As mentioned previously, the degree of gloss imparted to the coating is a direct function of the rate and degree of chilling after application.

When this method of application is used, coating weight is controlled by adjusting the tension of the web and varying the area of contact between the metering device and the substrate. Kiss coating is most suitable for experimental evaluations and has merit in that existing equipment, such as laminating machines, can be readily modified for commercial use. However, it appears to have limitations in applying low-weight coating at high speeds because pressure build-up at the metering device tends to make coating weights difficult to control.





Figures 8 and 9. *An 18-in. hot-roll kiss coater, used for development and testing of Elvax/wax coatings in Du Pont laboratories, is shown above photographically and schematically.*

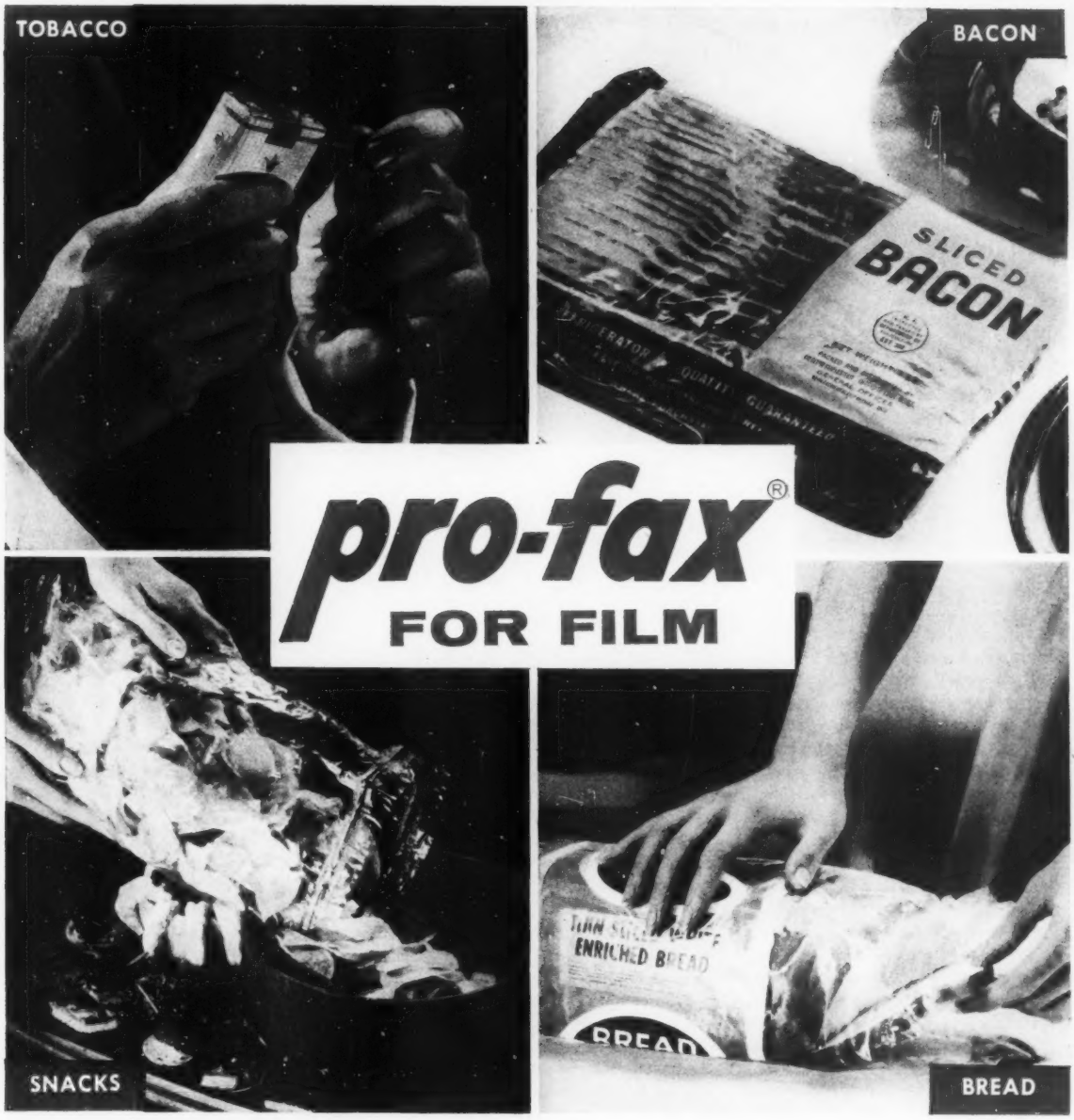
Gravure coating. This method employs essentially the same principles as the hot-roll kiss application except that the applicator roll is engraved. Also, a doctor blade in close contact with the gravure roll allows the roll to transfer only that melt which fills the engravings; thus, precise metering is carried out at the applicator roll and the need for a subsequent metering device is eliminated. If a smooth coating is desired, subsequent reverse-driven, heated polishing or smoothing rolls may be employed to break up and eliminate the pattern imparted by the engraved roll. Chilling is carried out in the same manner as in the smooth kiss-roll coating method.

Coating weight is controlled by selecting the proper gravure pattern and varying the number and depth of engravings per unit area of the applicator roll. This method is recommended for operations where high speed and low coating weights are specified. Speeds in excess of 500 ft./min. can be obtained by this method.

Curtain coating. Initial testing indicates viscous, hot-melt Elvax/wax blends can be applied satisfactorily by curtain coaters. One type employing a pressure curtain system functions as follows:

The hot-melt blend is pumped from the heated reservoir to the heated coating head, which can be raised or lowered. The head, which contains a V-shaped orifice of fixed and movable blades, runs the width of the coating area. The hot melt extrudes downward through the orifice and forms a thin, uniform film or curtain through which the substrate to be coated passes at a high rate of speed on a mechanical conveyor system, or as a continuous web. That part of the curtain which does not contact the substrate passing through it runs into a trough and is returned to the reservoir for recycling.

The coating weight applied to the substrate is principally a function of the amount of material pumped to the head [*Continued on page 198*]



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Heat sealing polyethylene

Q: *We have been running a pouch-packaging machine with an impulse heat sealer on 2-mil polyethylene film for several months with great success, but now we are starting to have trouble with faulty heat seals. Has there been any basic change in film that our polyethylene suppliers possibly have not told us about that might be causing this problem?*

A: Anything is possible, but if you are dealing with reputable suppliers it is unlikely that they have made a chemical change in formulation that would affect heat sealing adversely without catching it through their own tests.

Have you thought of gauge control? Even the best suppliers can slip here occasionally, so check a roll at different points across the web and at many spots throughout the length of the roll to see if the thickness is constant. If you are running at high speeds, variations of more than ± 10% could cause trouble in heat sealing the film.

Then there is the possibility of variations in machine operation. Since you say that the bad heat seals are recent—and we note that you are located in the South—the trouble might be simply a small increase in the temperature of the cooling water for the impulse jaws, brought about by the return of warm weather. You might have to install a small refrigerating unit on your cooling-water line to keep the temperature constant. If you have no water-cooling system, it may be necessary to install one, since heat build-up can be a problem.

Also, variations in line voltage could cause the trouble. Though these variations are more prevalent in winter, heavy use of air conditioners in your area might cause fluctuating voltage that would affect impulse-sealing temperature. A special transformer on the line would cure this problem.

Finally, what about air pressure? If your plant—like most—is low on compressor capacity, you may have to put in a small booster pump to level out your air pressure.

I would suggest that you check all of these points while you are filing a complaint with your film supplier. Even if it develops that all of them check out properly, it will be an aid both to you and to your supplier in determining any other factors that might be contributing to your problem.

Plastic aerosols

Q: *We have been interested for some time in using a plastic aerosol for toiletries, but these containers have been far too expensive for our products. Is there any work being done in new plastics or in older materials that will reduce the price of these containers?*

A: There certainly is. Several suppliers report that they are coming closer to aerosols made from polystyrene, which is an extremely low-priced plastic. It now seems to be only a matter of time before coatings are worked out that will reduce both the permeability of this material and the danger of interaction between product and package.

Also, there are now several aerosols on the market made from acetal resin, a relatively high-priced plastic that nevertheless is easily formed into unusual shapes. Made in two pieces, these packages are joined by spin welding. A new pressure package of this material, now being tested, has part of the valve molded into the body of the container. The resultant aerosol is said to be less costly than a comparable plastic-coated glass aerosol and can be made in both continuous-spray and controlled-spray designs.

Limit-switch operation

Q: *Control of packaging operations on one of our bottling lines is actuated by a limit switch, which we installed on the input conveyor. While this control works most of the time, it occasionally fails to trip. Is there any such control device that is 100% foolproof?*

A: You could, of course, use a reliable ultrasonic detector or arrange a photo-eye so that it would pick up even a clear glass bottle with perfect regularity, but for economy there is nothing that will beat the limit switch. And we are not at all convinced that this device will not give you positive action. It is quite possible that you did not have it installed correctly—a fairly common failing when a set-up mechanic does not understand clearly the principles by which this particular mechanism operates.

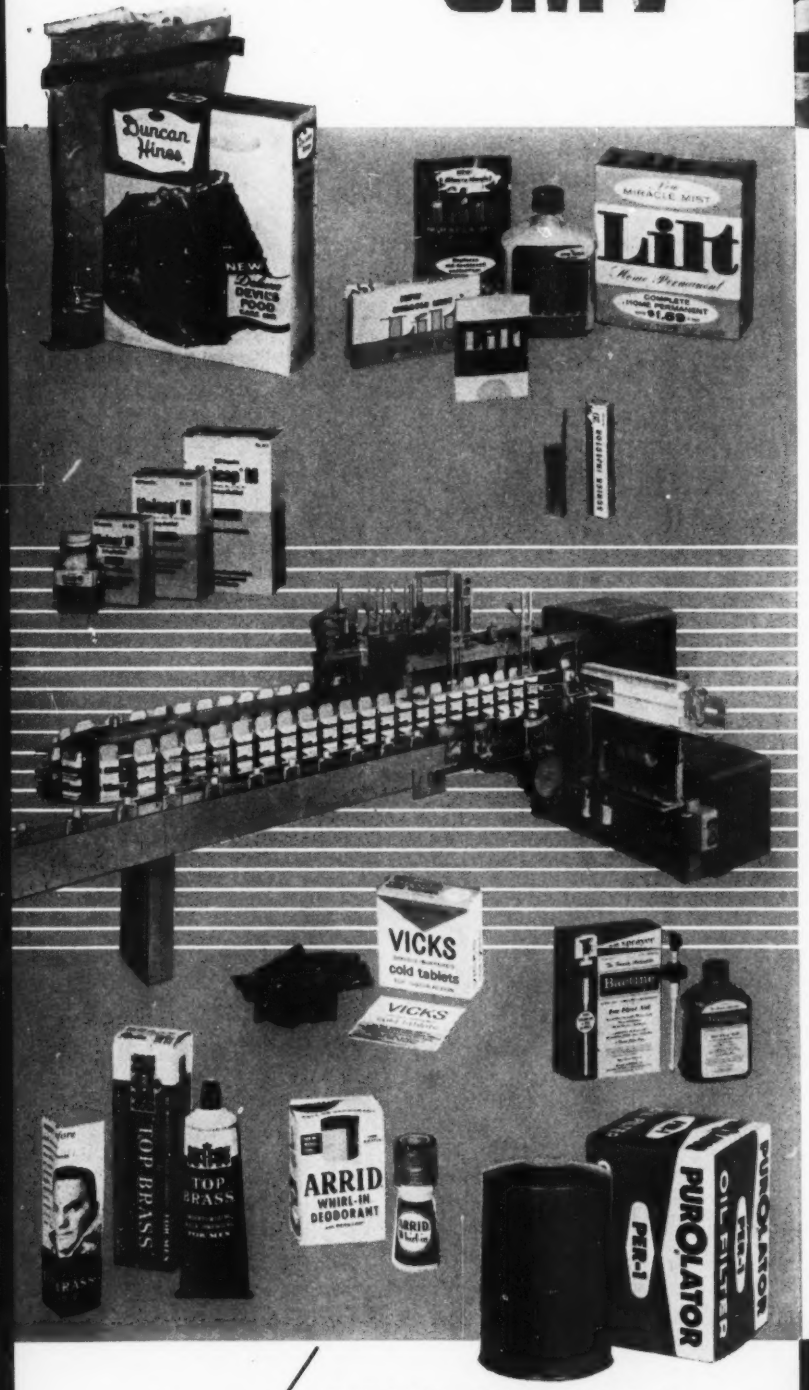
The arm on a common cam-action limit switch swings over an arc of approximately 90 deg., but this travel is divided into three parts—a factor which is of considerable importance to the operation of the switch. These parts each constitute about 30 deg. of arc and are called: (1) pre-travel, (2) movement differential and (3) overtravel.

A bottle must push the lever through the first 30 deg. before the electrical switch starts to move. However, the switch is not thrown until the lever has moved through the second 30-deg. arc. The final or overtravel arc prevents damage to the switch mechanism (and it should never be exceeded). As the lever returns under spring tension, it must pass completely through the 30-deg. area of movement differential before the switch is re-thrown.

It is not necessary to let the lever drop all the way to zero deg., or to force it all the way to 90 deg. to get good operation. In fact, operating speeds can be increased considerably by reducing the arc of lever motion. However, the limits of lever motion must not be held too close to the 30- and 60-deg. marks, or you will probably get erratic operation. If this is the case with your line-control device, repositioning it so that the arm has more swing will probably cure the trouble you are having.

constant motion vertical cartoner

JONES CMV



Semi-automatic machine for cartoning bottles, pouches, tubes and odd-shaped products.

Speeds 18 to 120 cpm.

The Jones CMV is used by over 200 manufacturers of pharmaceutical, food, cosmetic, chemical, automotive, electrical, electronic and other hard-to-carton products. It automatically feeds and opens the flat, tuck style carton, closes the bottom, and (after the product has been loaded manually) closes the carton.

The operator merely loads the product (typical rate: 60 to 80 cartons per minute with single-piece loads).

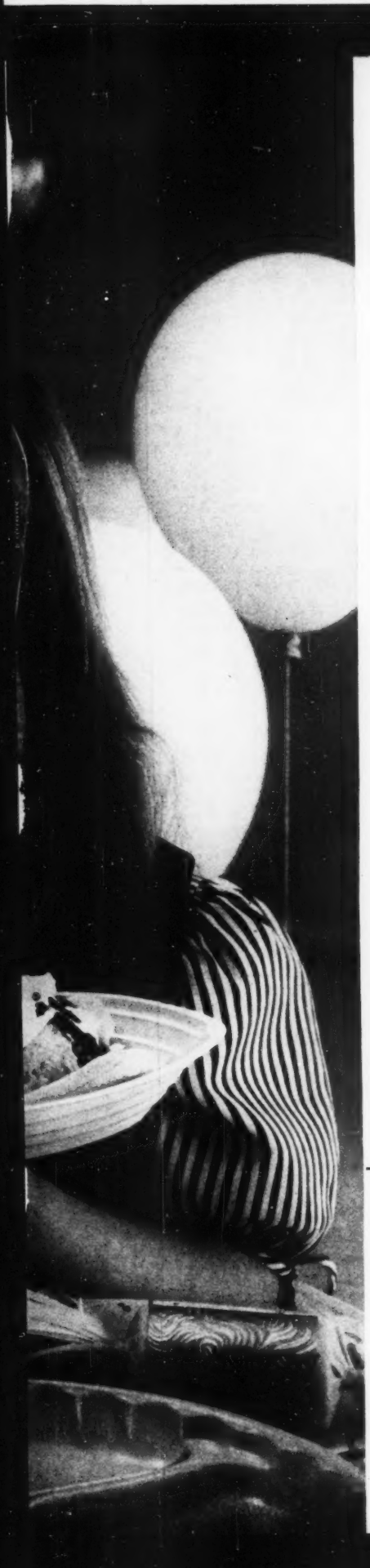
A single CMV accommodates a wide range of carton sizes—as many as 28 different sizes in one instance. Adjustable parts allow one man to change machine from one size carton to another in 30 minutes or less. CMV versatility is particularly welcome with partitioned cartons containing a bottle and dropper, or two tubes or two bottles for special promotions.

Rotary imprinter, code dater, gluing devices and extra high speed cycling (up to 150 cpm) can be integrated into the CMV for even greater productivity and reduced labor costs. For complete information, write us outlining your requirements. R. A. Jones & Co., Inc., P. O. Box 485, Cincinnati 1, Ohio.

Branch Offices: New York, Chicago, Atlanta, St. Louis, Los Angeles, San Francisco, Seattle, Dallas, Mexico, Montreal.

R. A. JONES & COMPANY, INC.

Cartoning Machines · Case Packers



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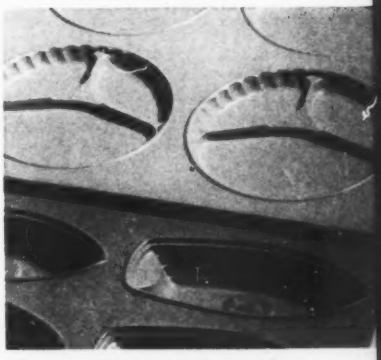
Lustrex impact styrene for formed packages

Command sales attention with colorful, disposable formed containers made of Lustrex styrene... ideal for packaging, counter service, vending and dispensing. These thin gauge containers, combine eye and appetite appeal with serviceability . . . lightweight, and just the right amount of impact strength and toughness to do the job at the right price.

For more information on Lustrex and Santofome in formed packages, mail the coupon below.

LUSTREX: Reg. U. S. Pat. Off.
SANTOFOME: T. M. Monsanto Chemical Company

MONSANTO DESIGNER IN **PLASTICS**



Close quality control on color, strength and uniformity of Monsanto Lustrex assures continuous flow, rapid multi-unit production.

Need insulation for hot and cold contents? New Santofome foamed styrene film, combined with Lustrex styrene sheet, makes containers comfortable to hold.

Monsanto Chemical Company, Plastics Division
Room 823, Springfield 2, Massachusetts

Please send me information describing: ☐ Where I may obtain sample packages formed from Lustrex
☐ Lustrex for the manufacture of formed packages
☐ Santofome foamed styrene film

Monsanto

Name_____ Title_____

Company_____

Address_____

City_____ State_____

plants & people

William M. Nolan has been appointed mgr. of market development of the Film Div., **American Viscose Corp.**, Philadelphia. Formerly head of the technical sales group, Mr. Nolan will supervise both activities in the new organizational alignment under the direction of **Edward E. Ruggles**, marketing mgr. Mr. Nolan succeeds **James A. Houle**, who has resigned.

W. R. Grace & Co., New York, and **Chemore Corp.**, U. S. representative for **Montecatini**, Milan, Italy, have agreed to cooperate in the marketing and production of polypropylene. Grace's Polymer Chemicals Div. will market the polypropylene produced in a new plant being built and operated by **Novament Corp.**, Montecatini's wholly-owned sub. (also represented in the U. S. by Chemore). The polypropylene will be marketed under the trademark "Moplen." The new plant, which will have an initial annual capacity of 25 million pounds, is located in Neal, W. Va. and will go on stream in the third quarter of this year.

Chase Bag Co., New York, has promoted **Eugene P. Alexander** to mgr. of the Multiwall Bag Div. Mr. Alexander joined Chase in 1948 and has been sales mgr. of the Multiwall Bag Div. since 1959. Prior to that he had been sales mgr. of the company offices in Detroit and Chicago.

Edward H. Grebe has been named v.p. in charge of the newly created Planning and Facilities Div. of **Paper Package Co.**, Indianapolis. Mr. Grebe, who has been with Paper Package for 36 years, previously served as treas. and head of the Financial Div. Paper Package is a div. of **Creative Packaging, Inc.**

Several executives of **Owens-Illinois Glass Co.**, Toledo, have been elected v.p.'s. Among those elected was **Floyd M. Canter**, who will become v.p.-corporate planning. Mr. Canter succeeds Alec M. Turner in his new post. Mr. Turner becomes gen. mgr. of the O-I International Div. **Sid F. Davis**, gen. sales mgr. of the Glass Container Div., and **Miles G. Beishline**, gen. mfg. and engineering mgr., were also elected v.p.'s. They will continue in their present positions.

Canter

William H. Boshart has retired after serving as an O-I director for 50 years. He has been given the honorary title of director emeritus. **William W. Knight, Sr.**, who retired as a director at the same time, has also been named director emeritus. Mr. Knight had been a director since 1932.

George Collons, v.p., formerly in charge of Eastern operations of **Kleen-Stik Products, Inc.**, Chicago, has been appointed gen. sales mgr. The company's sales activities previously had been under the direction of **Jerry Zalkind**, exec. v.p. Kleen-Stik notes that the appointment of Mr. Collons will permit Mr. Zalkind to give more time to the development of new products and markets. Mr. Collons, who had been based in the New York office, is now located at the company's executive office in Chicago.

Collons *Zalkind*

The Warner Brothers Co., Bridgeport, Conn., has purchased **Plastic Artisans, Inc.**, Port Chester, N.Y. The latter company, a supplier of thermoformed plastic products and containers, will be operated as part of Warner's Packaging Div., with no change in personnel or location. **Carl W. Middleton, Jr.**, co-founder and pres. of Plastic Artisans, will continue as head of the firm. According to Warner, the acquisition is intended to broaden the parent company's packaging services, and was brought about by the trend toward integration of plastics with paperboard. (See "Plastics Today and Tomorrow," MODERN PACKAGING, June, 1961, p. 95.)

E. I. du Pont de Nemours & Co., Wilmington, Del., is constructing a new plant at Orange, Texas, to produce low-density polyethylene and "Elvax" vinyl resin (a copolymer of ethylene and vinyl acetate). The "Elvax" resin is used to impart toughness, flexibility and adhesion to paraffin wax and other brittle, low-molecular-weight materials. The new polyethylene unit will bring Du Pont's over-all polyethylene capacity to nearly 400 million pounds.

Richard J. Walters has been elected to the newly created position of exec. v.p. for **Diamond National Corp.**, New York. **E. B. Howard** and **John R. Barnett** have been elected v.p.'s. Mr. Walters became a v.p. and director of Diamond National in 1959.

Diamond National has also made several changes in the management of its molded-packaging div. Among these was the promotion of **Eric G. Erickson** to gen. sales mgr. for disposable plates and molded-pulp trays. He is a divisional v.p. and for the past year had been director of mfg. for the division. Also promoted was **George S. Wolf** to divisional v.p. and gen. sales mgr. for egg packaging. He formerly was Eastern area sales mgr. for egg packaging. **John J. Penn** was named director of mfg. for the div., succeeding Mr. Erickson. He previously was asst. director.

Dr. Paul W. Moeller has been named director of marketing for **AviSun Corp.**, Philadelphia. Dr. Moeller, who had been serving as mgr. of the International Dept. for AviSun, succeeds **Henry E. Wessel**, who has resigned. Dr. Moeller will be responsible for AviSun's sales and marketing activities.

Warren Marshall has been appointed gen. sales mgr. of the Packaging Div. of **Schmidt Lithograph Co.**, San Francisco. Mr. Marshall will be responsible for the creation and sale of labels and folding cartons. His most recent position was that of product mgr.-packaging.

Riegel Paper Co., New York, has realigned its operating divisions in order to complete the consolidation of **Bloomer Bros.** and **Lassiter Corp.**, which were acquired last year in a stock transfer. A Flexible Packaging Div. has been established by the company, with **J. Hanes Lassiter**, v.p., named gen. mgr. A Paper Div. also has been set up to handle production and sales of merchant, industrial and converting papers,

Lassiter *Bidwell* *Barr*

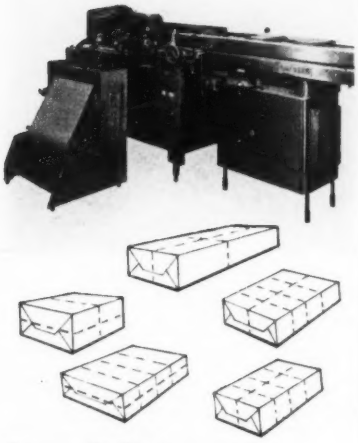
with **G. Lamont Bidwell, Jr.**, v.p., named gen. mgr. Production and sale of folding cartons for the food industry will be handled by the new Folding Carton Div., to be headed by gen. mgr. **Chalmers W. Barr.**

L. E. Fake, films and sheeting product mgr. in the Plastic Sales Dept., of **The Dow Chemical Co.**, Midland, Mich., has been transferred to a European project assignment for **Dow Chemical International Limited S.A.** Mr. Fake is now product mgr. for packaging materials and is assigned to Dow International's European operations headquarters in Zurich, Switzerland. In this newly created post, Mr. Fake will have responsibility for further developing commercial use of Dow plastics packaging materials.

The **Riegel Paper Corp.**, New York, has bought the **Bryce Packaging Co.**, Memphis. **William H. Bryce**, pres. of the latter firm, will continue as mgr. of the company, which operates plants in Memphis and Paris, Texas. It is now a part of the Riegel Flexible Packaging

Hayssen Can Bundle Your Product Automatically

You name it — drugs, cosmetics, candy, ice cream cartons, electric parts, toilet tissue — and there's a Hayssen accumulator-bundler to handle it faster, more efficiently! Hayssen has pioneered since 1910 in developing time and labor saving wrapping machines for scores of industries. Right now chances are progressive manufacturers in your industry are lowering their production costs with Hayssen machines. Why not see what a Hayssen accumulator-bundler can do for your production schedule! It costs nothing to find out — just write or call your nearby Hayssen Representative for an appointment.



Increase Profits by:

- Eliminating Chipboard Cartons
- Eliminating Corrugated Cases
- Higher Speed of Operation
- Manpower Reduction

nothing frustrates a good salesman like a poor package

Hayssen machines produce saleable packages — the kind your salesmen want and need! Hayssen knows what makes a saleable package (we've been producing them since 1910) and we're at your service to develop the type of packaging that will do your product justice. Hayssen machines are busy right now in hundreds of companies packaging liquids, powders, granules, hard and soft goods in saleable packages. Why not see what Hayssen packaging machines can do for you. There is no charge or obligation for this service — just look in the Yellow Pages under Packaging Machinery! Your salesmen will be mighty glad you did!

Exclusively Manufacturers of Packaging Machines Since 1910

HAYSSEN

MANUFACTURING COMPANY • SHEBOYGAN, WISCONSIN

Offices in principal cities. Check your phone directory.

ATLANTA • BOSTON • CHICAGO • COLUMBUS • DALLAS • DENVER • DETROIT • EVANSVILLE, IND. • JACKSON, MISS. • KANSAS CITY • MINNEAPOLIS • NEW YORK • PHILADELPHIA • ST. LOUIS • SAN FRANCISCO • MONTREAL • TORONTO • VANCOUVER • OFFICES IN PRINCIPAL FOREIGN CITIES •

Plants & People [*Cont'd*]

Div. and will continue to manufacture waxed paper and cellophane bags for food products. No changes in personnel are planned. Riegel also has acquired a minor interest in **Dixie Waxed Paper Products** of Dallas and Memphis, representing the Bryce holdings.

Schoenhofen

Leo H. Schoenhofen has been elected pres. and a member of the exec. committee of **Container Corp. of America,** Chicago. Prior to Mr. Schoenhofen's election, board chairman **Wesley M. Dixon** also served as pres. Mr. Dixon continues as chief exec. officer. **John V. Spachner,** formerly exec. v.p., has been elected board vice chairman and a member of the executive committee. Mr. Schoenhofen, as pres., is in charge of domestic operations; Mr. Spachner, as vice chairman, is in charge of foreign operations.

The board of directors of **International Paper Co.,** New York, has designated **John H. Hinman** honorary board chairman and director of woodlands. He continues to serve on the board. Succeeding Mr. Hinman as board chairman is **Richard C. Doane,** who had been pres. since 1954 and chief exec. officer since 1959. Mr. Doane continues to serve as chief exec. officer. **Lamar M. Fearing** has been elected to succeed Mr. Doane as pres. and **Joseph P. Monge** becomes v.p. and treas. Mr. Hinman joined International in 1913 and became board chairman in 1954. Prior to his election as pres. Mr. Doane had served as v.p. and gen. sales mgr. Mr. Fearing joined the company in 1924 and has been associated with sales and marketing activities. Mr. Monge has been with International since 1937.

Edward F. Herrlinger II has been named pres. of **The Gummed Products Co.,** Troy, O., sub. **St. Regis Paper Co.,** New York. Mr. Herrlinger succeeds his father, the late **Roth F. Herrlinger. Howard L. Heise** has been appointed v.p.-research. **Frank Winninger,** formerly asst. sales mgr., has been named sales mgr. **Robert N. Graham** succeeds Mr. Winninger. **Earl G. Frahm** has been named v.p. and controller.

St. Regis also has appointed **George A. Waters** to gen. mgr. of the Cleveland Corrugated Box Div. He succeeds **Gerard M. Kincade,** who was appointed asst. gen. mgr. of the Container Div. earlier this year. Mr. Waters is succeeded as sales mgr. by **C. William Newman. J. William Friesner** has been appointed sales mgr. of the Albany Corrugated Container Div.

Owens-Illinois Glass Co., Toledo, has begun producing blown plastic bottles at new facilities in St. Louis and San José, Calif. The new plants raise to 10 the number of O-I facilities now producing high-density polyethylene containers. O-I also has begun construction of a glass-container plant near Tracy, Calif. Construction is due for completion in the early part of 1962.

A second line for assembling 6-oz. aluminum cans for frozen juice concentrates is now in production at **Minute Maid Co.'s** Auburndale, Fla. plant. Lithographed can parts for the packager's assembly lines are supplied by **Reynolds Metals Co.,** Richmond, Va.

E. F. Corrigan has been named sales promotion mgr. of **Muirson Label Co.,** San José, Calif. Muirson has also named **R. Jacobus, W. M. Simpson** and **F. A. Kahrs** as asst. v.p.'s Mr. Corrigan, formerly Chicago district sales mgr., has been succeeded by **Val L. Schlink.**

Wilson

John M. Wilson, former sales mgr. of **Bostitch, Inc.,** East Greenwich, R. I., has been appointed gen. sales mgr. of the company. He succeeds **James M. Nestor,** who has resigned from Bostitch. Mr. Wilson will direct the company's sales force, service and managerial personnel located in 130 U. S. and Canadian cities. Prior to becoming sales mgr., Mr. Wilson managed the Bostitch-Michigan office in Detroit.

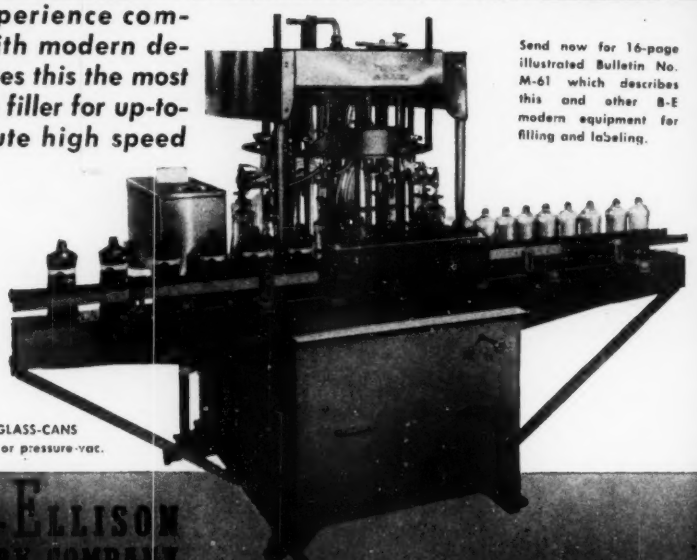
H. A. Bergstrom has been named director of research and development for fibre and steel drums at the General

[*Continued on page 155*]

The B-E ROTARY FILLER

Long experience combined with modern design makes this the most desirable filler for up-to-the-minute high speed filling.

Send now for 16-page illustrated Bulletin No. M-61 which describes this and other B-E modern equipment for filling and labeling.



FILLS PLASTIC-GLASS-CANS
Vacuum or pressure or pressure-vac.

- Made in the following sizes: 8, 12, 16, 18, 20, 24, 25, 30, 45 TUBES
- All stainless steel contact parts
- No open exposed supply tank
- Tube registration with bottle opening as reliable as the meshing of mating gears
- Minimum changeover time
- Instant speed variation
- Speeds up to 200 per minute
- Where constant high speed vacuum filling is desired, the B-E Filler is a must
- We can supply a machine tailored to your exact requirements—for a low initial cost

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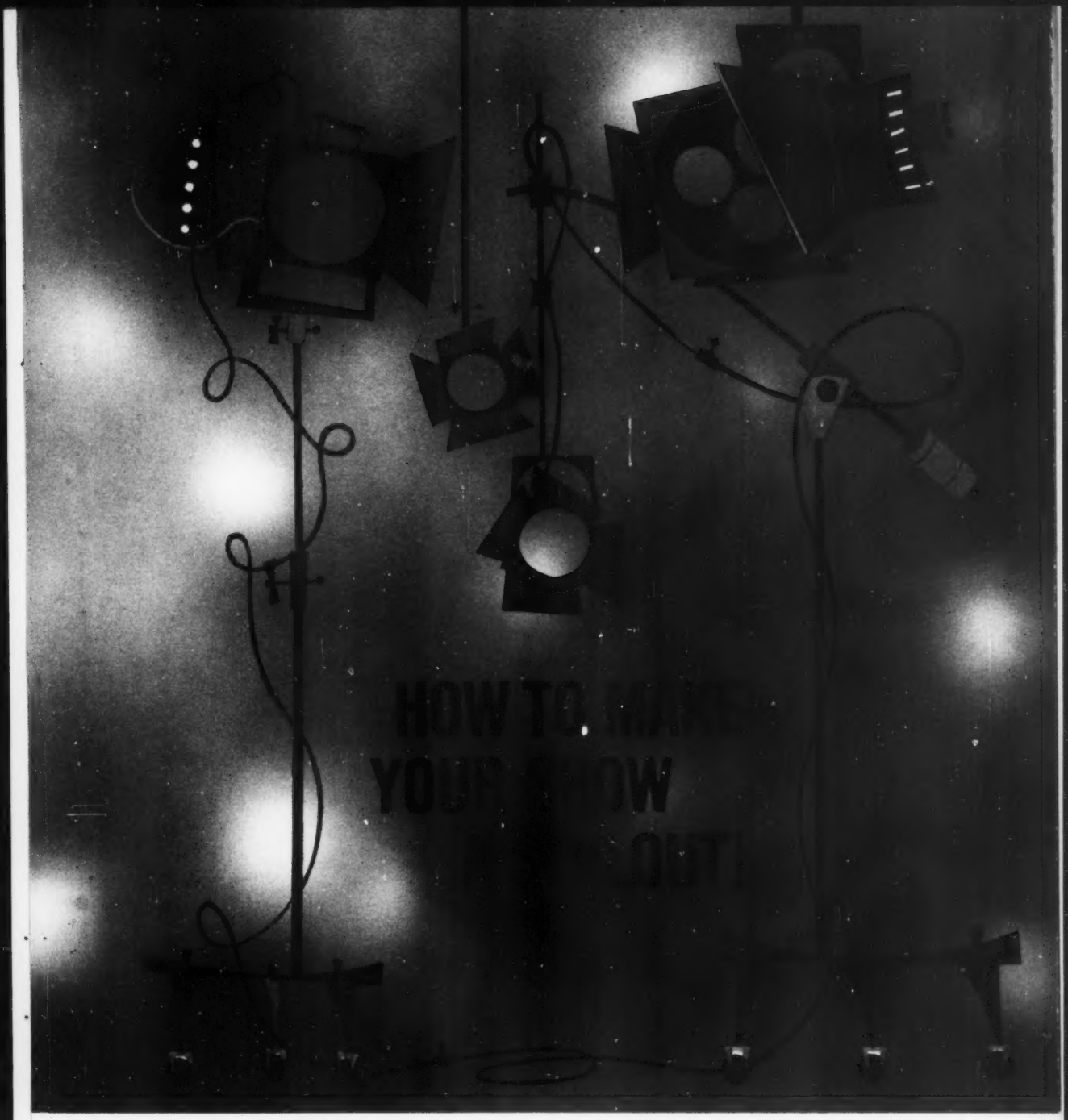

Dow Packaging Materials

The greatest show on earth has moved into the market place! Here, product after product puts on its own show. It takes creative packaging . . . and the *right* material for appearance, for function and for positive protection . . . to dress up a product for this highly competitive sales climate. On the following pages, you'll see why Dow packaging materials help put on a sell-out show for the products they take to market. You'll find some good clues to more creative packaging for your product. Then contact Dow and put those clues to work for you!

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

POLYFILM

Versatile Polyfilm® . . . Dow polyethylene film . . . is saving hundreds of soft goods items from soiling and handling damage. And it is increasing sales for hardware, paper products, and produce. Packaging with Polyfilm can be a powerful selling force for you, too! There's a special Polyfilm for every polyethylene packaging need . . . clarity . . . gloss . . . toughness . . . machinability. With Polyfilm you're ready to meet the demand . . . and open up new markets for your products. You'll obtain maximum performance and sales appeal for your packages when you specify Polyfilm.

DOW

STYRON

Here is the outstanding sales-maker among rigid packaging materials . . . and for good reasons! Styron® plastic gives any package a head start on function and appearance. Colors and designs . . . and new packaging opportunities . . . are unlimited. Versatile Styron affords new opportunity for custom-designed table-ready containers for dairy products, 'top of counter' cleanser containers and handsome blow-molded packages for toiletries. Even standard stock containers assume new beauty with Styron. Molded or thermo-formed packages made from the wide variety of Styron formulations are light in weight, yet sturdy . . . satisfy exacting design and performance standards.

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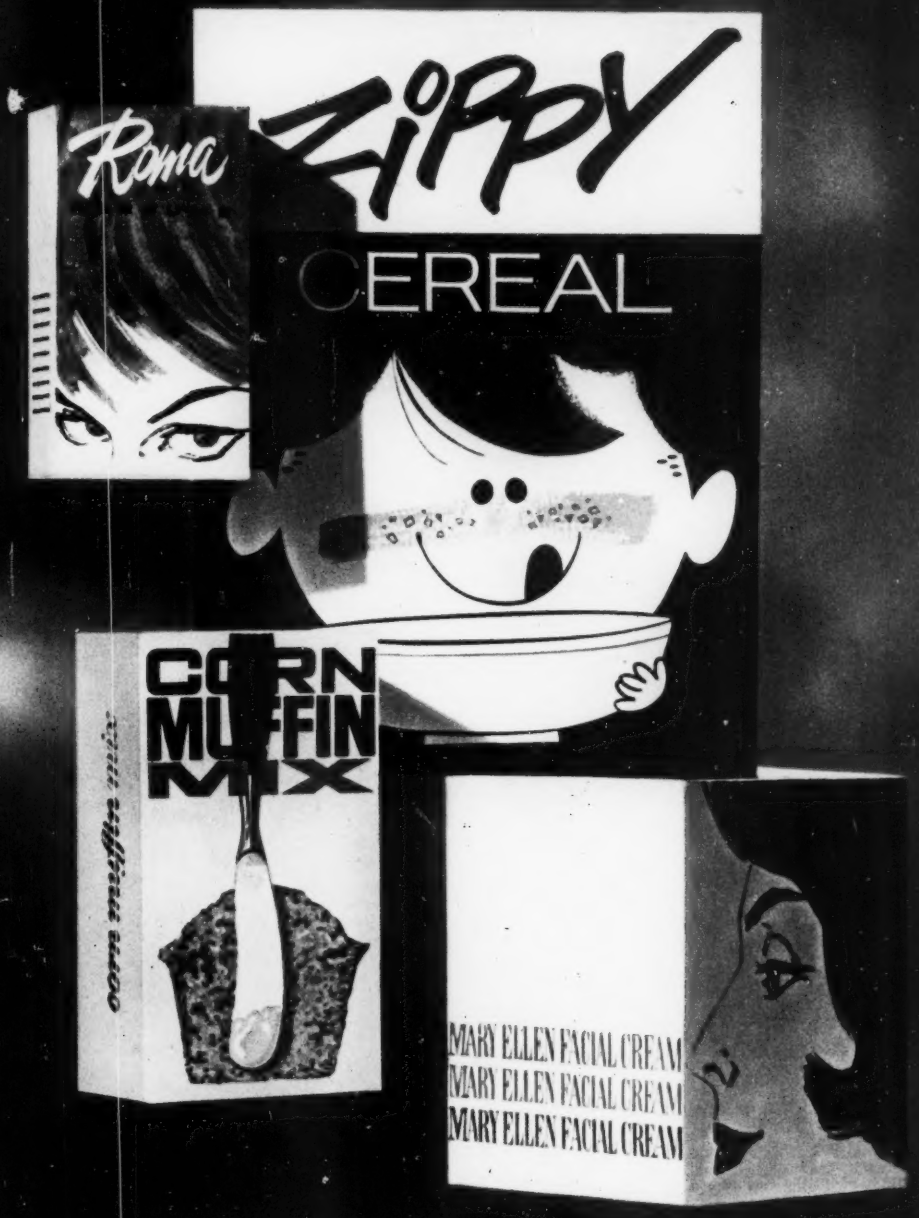


LATEX

What's come over boxboard? Coatings with Dow Latex! They're the coatings that give boxboard its fresh, clean look of quality, its satiny gloss and sharper, more colorful printing. Full-color food illustrations are at their best on coated boxboard using Dow Latex . . . colors are truer, illustrations look tempting and real. Moreover, these coatings make for easier folding and high resistance to cracking, important factors in maintaining the quality look of the package in the consumer's home. If your product packaging calls for boxboard, use the boxboard that gives you the most in sales appeal. Ask your boxboard supplier to recommend grades containing Dow Latex in the coatings.

DOW

RESINS

Whether it's frozen vegetables or cashmere sweaters, your product will put on its best show of quality in packaging tailor-made with Dow polyethylene resins. Here are the resins that can meet varied polyethylene packaging requirements . . . high gloss, excellent clarity, superior printability, tear strength, impact resistance, tailored slip resistance. Their closely controlled molecular weight range makes for high uniformity in the finished film. In addition, Dow polyethylene resins, when used as coatings, qualify paper for many new and sales-making packaging applications.

DOW

TRYCITE

Giving new sales impetus to a variety of items is an everyday accomplishment with packages made from Trycite® polystyrene flexible film . . . outstanding for its sparkling clarity, dimensional stability, and economy. Trycite "breathes" . . . won't wrinkle or curl . . . won't dry out . . . won't cloud up or discolor with age. Not to be overlooked is the fine appearance of printed Trycite. When it comes to creating sales-winning packages for small-budget products . . . produce, meat, baked goods, soft goods, novelties, stationery items . . . Trycite for pouches or boxes will make the difference.

DOW

Plants & People

[*Continued from page 148*]

Packaging Research and Development Div. of **Continental Can Co.**, New York. The division is located in Chicago. Mr. Bergstrom was previously director of research at the fibre drum laboratories in Van Wert, O. These laboratories have been consolidated in the new Chicago facilities.

General Box Co., Des Plaines, Ill., and **Thomas Plastikraft**, New Hartford, N. Y., have been named convertors and distributors of "Xanfoam"—**Sun Chemical Corp.**'s extruded polystyrene foam.

Richard Burgess has been appointed sales mgr. for the newly created Beverage Container Div. of **Thatcher Glass Mfg. Co.**, New York. Mr. Burgess has been pres. of the Great Lakes Coca-Cola Bottling Co. and v.p. for domestic sales of the Pepsi-Cola Co. Prior to joining Thatcher, he was mktg. director of Royal Crown Cola Co. Mr. Burgess will be headquartered in New York and will direct the company's drive to expand its beverage-container sales. Thatcher believes that the one-way soft-drink bottle will play an important role in this expansion.

Burgess

R-C Can Co., St. Louis, has opened a district sales office in New York at 247 Park Ave. The New York office will supervise the company's sales in the New England states, New York, New Jersey, Pennsylvania, Virginia, West Virginia, Maryland, Delaware and Washington, D. C. All products in the firm's line, including fibre cans and plastic lids and containers, will be represented. The recently introduced R-C Foil-Kan, a laminated aluminum foil and fibre container for frozen-juice concentrates, motor oil and other products, will also be handled. **Gordon Von-Doersten** will head the New York organization as Eastern district sales mgr. He formerly was in charge of the New York sales office of the Fibre Can Div. of **Container Corp. of America.**

Osborn

Allied Chemical Co.'s **General Chemical Div.**, New York, has appointed **Kenneth R. Osborn** to the newly created post of director of industrial development. Mr. Osborn will primarily be concerned with investigating new products and expediting their commercial production. He has been with the division 26 years and was previously chief engineer.

Deerfield Glassine Co., Monroe Bridge, Mass., has changed its sales organization to take into account the inauguration of operations in its sub., **Southern Glassine Co.**, Augusta, Ga. **R. L. Cain**, formerly responsible for the Midwest

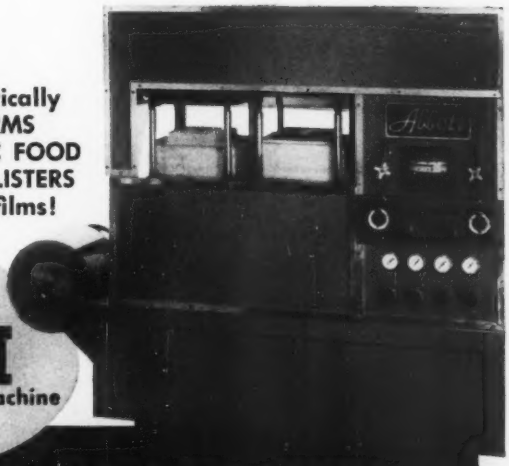
[*Continued on page 160*]

NEW compact Machine Automatically PRESSURES FORMS LOW-COST PLASTIC FOOD CONTAINERS & BLISTERS from roll plastic films!

Introducing

Abbott PFM

Pressure Forming Machine



PUSH-BUTTON PACKAGING 100% APPROVED FOR EVERY TYPE FOOD CONTAINER!

Base Price
Standard Machine
$9,750.00 or only
$311.00 per month
on Lease Plan

- Uses inexpensive aluminum or epoxy molds
- Forms round, square & rectangular transparent or colored opaque containers Strong, greaseproof, non-toxic
- Ties in with any production or packaging line
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WRITE, WIRE OR PHONE today for full details on operation

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Bradley

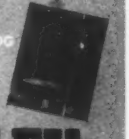
PLASTIC SHOWCASE PACKAGING *makes sales* "CLICK!" *for* Ryth-mo

POWER SWING GROOVER FOR GOLFERS

A "miniature golf green" for practice shots with RYTH-MO's outstanding "clicking trainer" beckons golfers through this re-use showcase box of glistening rigid polystyrene. "Custom-package" prestige, achieved with stock boxes from Bradley, helps put "sales in the groove" for RYTH-MO.

Colorful box with see-through hinged cover . . . one of hundreds of Bradley stock boxes in every shape, size and style . . . brings "hard sell" within easy reach for your products, too. Investigate "No Mold Cost" custom designs on large-volume orders.

WRITE FOR NEW 1961 CATALOG showing the World's Largest Assortment of Rigid Plastic Boxes.



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See for yourself why so many packagers

COMPARE

Du Pont's new 2 in 1 polyethylene with the film you are now using

Is yours just as clear? Then test for strength. Or perhaps yours is just as strong. But is it as clear? Sure, you can get poly with just one of these properties...but Du Pont's 2 in 1 polyethylene bag film combines *both* crystal clarity and toughness. Compare. You'll see why so many leading packagers like Ship'n Shore, Inc., are now using Du Pont's 2 in 1 polyethylene. Call your Authorized Converter or Du Pont Representative. E. I. du Pont de Nemours & Co. (Inc.), Film Dept., Wilmington 98, Del.

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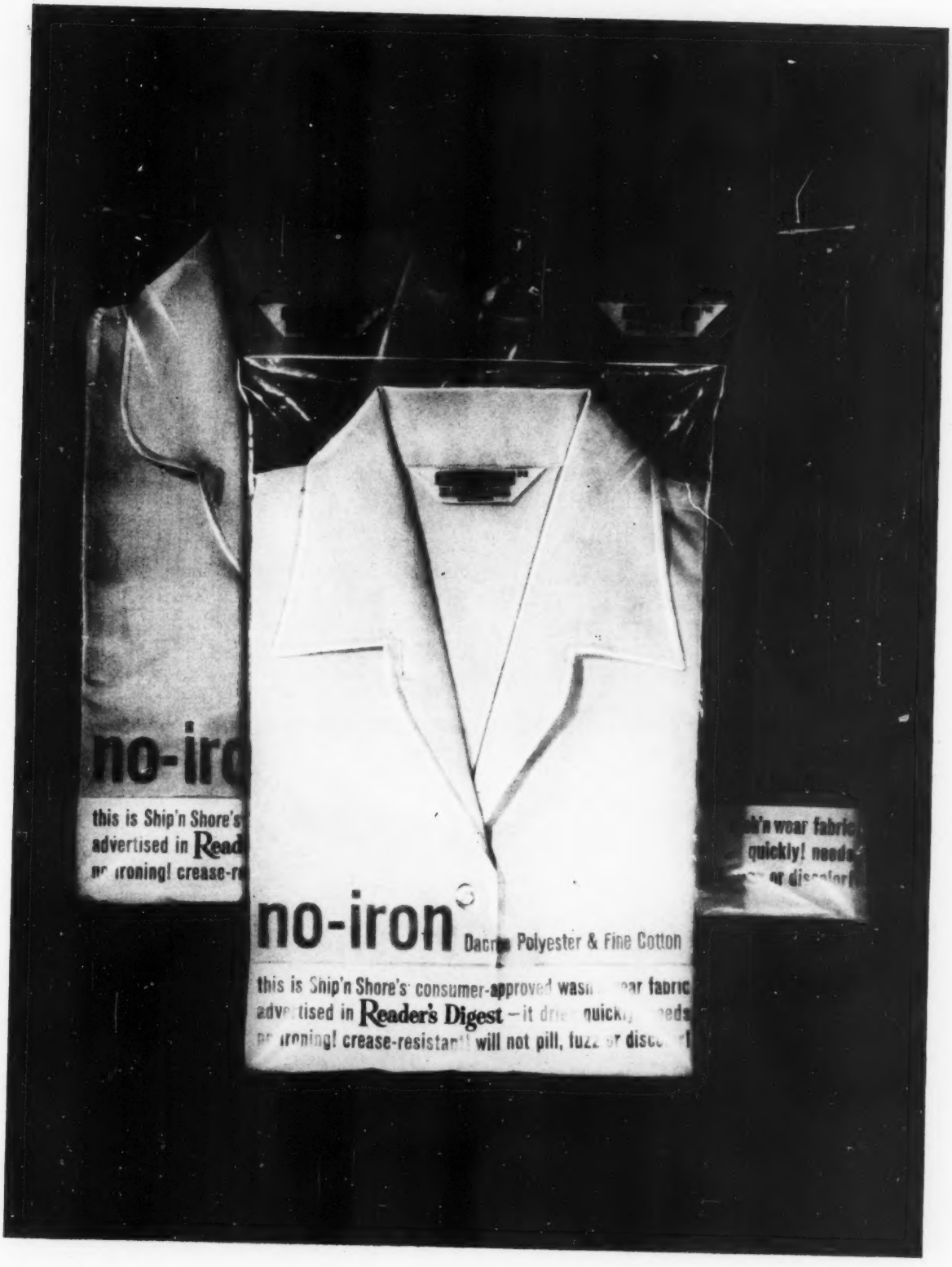
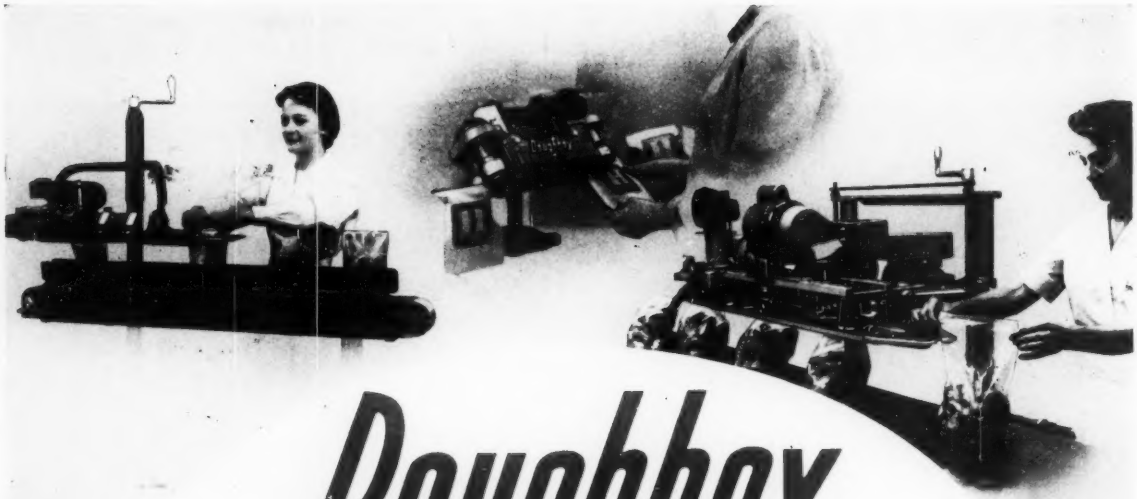
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT polyethylene film

are specifying <u>this</u> polyethylene . . .





Doughboy

INDIVIDUALLY ENGINEERED SEALING, LABELING, CODING, CONVEYING AND PACKAGING

Systems

After installing packaging systems for thousands of manufacturers of various kinds of products, we have found that each manufacturer usually has special conditions and problems which must be individually engineered if the packaging is to be done economically.

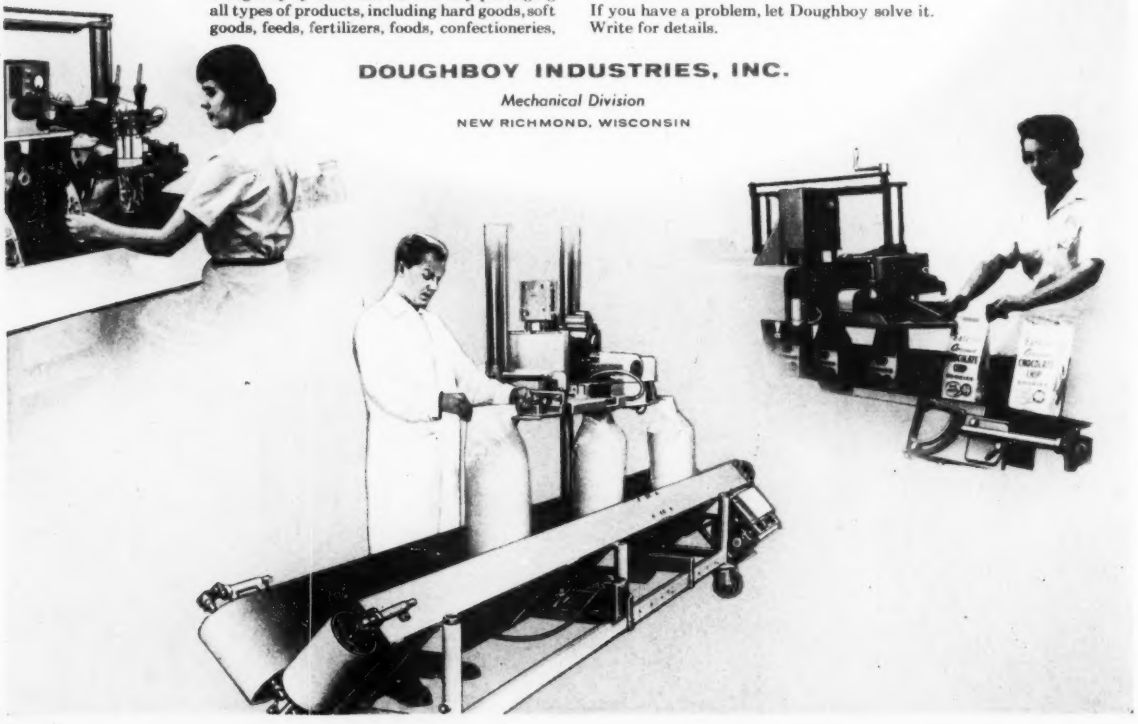
Doughboy systems are successfully packaging all types of products, including hard goods, soft goods, feeds, fertilizers, foods, confectioneries, candies, etc. They efficiently handle pliofilm, polyethylene, vinyls, suran, cellophane, glassine, coated papers, scrimbacks and laminates. Doughboy service includes engineering the most economical system for best handling the sealing, labeling, coding and conveying problems of the individual manufacturer.

If you have a problem, let Doughboy solve it. Write for details.

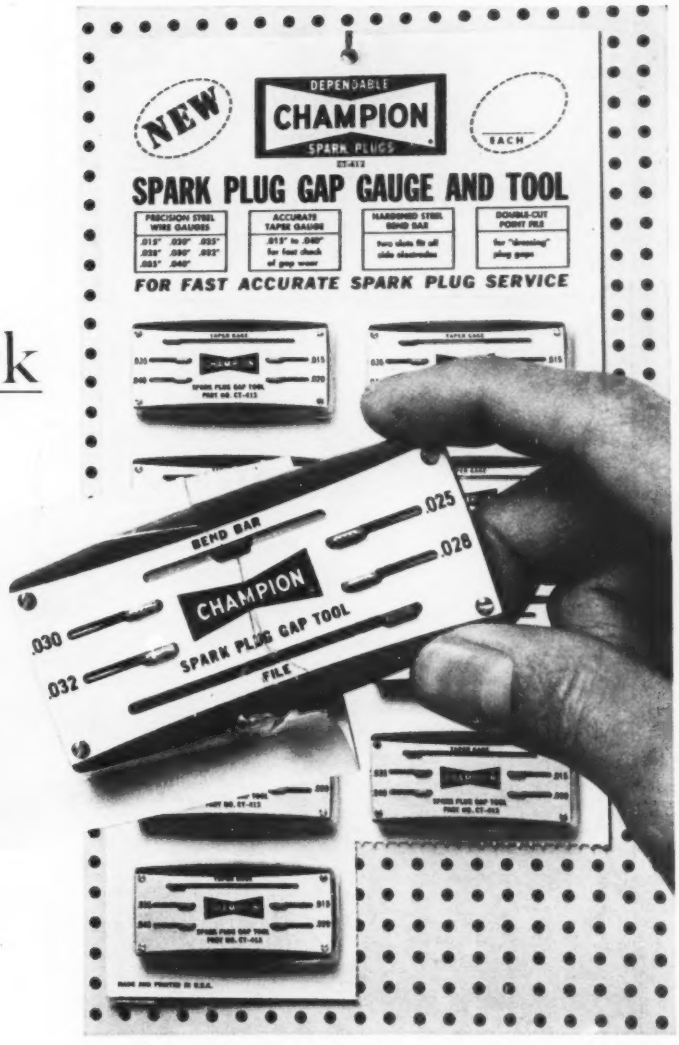
DOUGHBOY INDUSTRIES, INC.

Mechanical Division

NEW RICHMOND, WISCONSIN



Clean as a whistle– and ready for work



...thanks to Kodapak "STOP-LOSS" packaging!

Stop-Loss packaging? What's that? What does it mean?

Actually, "Stop-Loss" describes special packaging in a very special, tough, crystal-clear material . . . Kodapak II Sheet.

In this instance, Holland Industries, Inc., (Buffalo, N.Y.) picked Kodapak II to package Champion's Spark Plug Gauge and Tool in groups of ten blisters each to a self-seller display card.

Result: Skin-tight protection from dust, dirt and moisture . . . plus complete visibility! This keeps merchandise fresh and clean, assures fast *unit-sell*, stops loss from both shop-wear and pilfering. At the same time, protecting blister is easily removed by purchaser. For more about Kodapak II and packaging, see our representative or write:

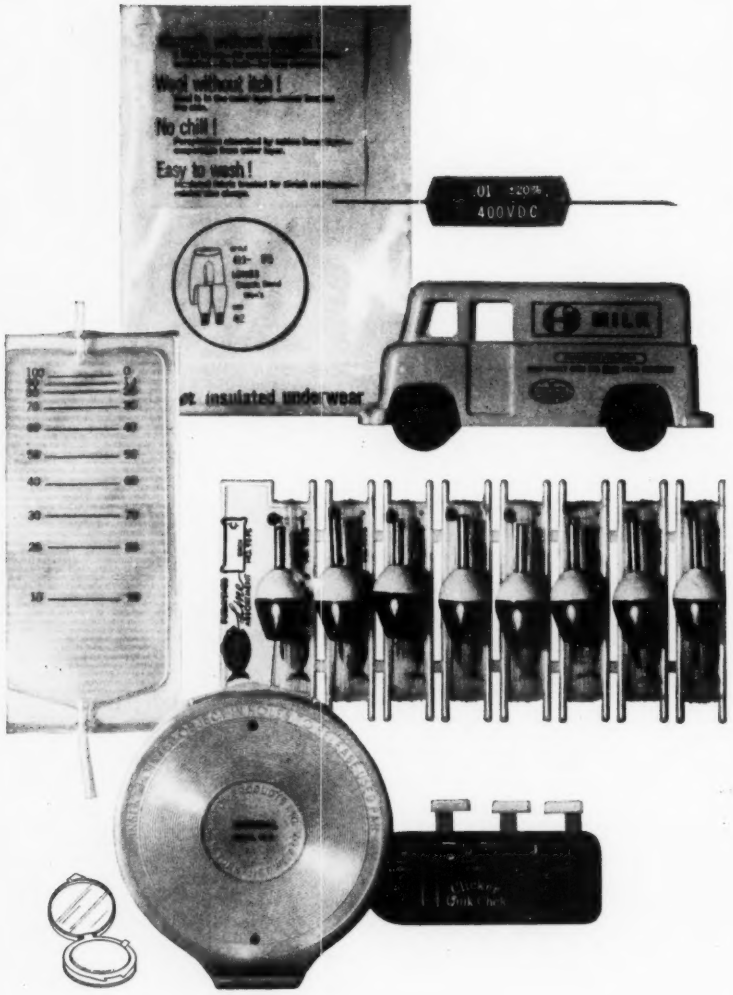
EASTMAN KODAK COMPANY
Plastic Sheeting Division, Rochester 4, N.Y.

Sales Offices: *New York, Chicago, Atlanta.* Sales Representatives: *Cleveland, Philadelphia, Providence.* Distributors: *San Francisco, Los Angeles, Portland, Seattle (Wilson & Geo. Meyer & Co.); Toronto, Montreal (Paper Sales, Ltd.).*

Kodapak

SHEET

Kodapak™ is a trademark for Eastman's plastic sheet



No doubt about their identification and decoration

—it stops the eye, tells the story, helps the sale. This is marking *everybody* can read—made by Markem machines and printing elements. And perhaps most important, the Markem *specialty inks* used have just the right combination of opacity, color, adhesion and drying speed each type of plastic requires.

This is the "Markem method" that can be working for you—the *right* machine, type and ink to do *your* particular marking job quickly, clearly and at low cost, in your own plant. It *stays* clear and attractive because it stays *on* your product and can't fall off or easily smudge. Call your Markem representative for complete facts, or write Markem Machine Co., Keene 1, N.H.

MARKEM

Plants & People

[*Continued from page 155*]

and Southern territories for Deerfield, has become director of sales for Southern Glassine. **A. R. Witto** has been named asst. sales mgr. for Deerfield and has assumed responsibility for the Midwest area as well as New York State. **R. L. Moltenbrey's** sales duties have been extended to the New Jersey area in addition to New England.

Three veteran executives of the **Wabash Fibre Box Co. Div.**, Terre Haute, Ind., have been elected officers of the parent company, **The Weston Paper & Mfg Co.**, Dayton. **Robert C. Adamson**, gen. mgr. of the firm's Wabash div. has been named v.p.-container production; **Carlton Campbell**, sales mgr.-mill sales, is now v.p.-mill sales, and **Robert F. Reyher**, div. sales mgr., becomes v.p. for container sales.

The **Conex Div. of Illinois Tool Works** has appointed **Robert G. Rettig** to the post of sales-prom. mgr. He will be responsible for all marketing phases involving new products developed by the company—a supplier of thin-wall plastic dairy product containers, vending cups, and multi-pack units for canned products. The company has also named two area sales mgrs. They are **Donald J. Arnold**, who was with the Paper Container Div. of **Continental Can Co.**, New York, before joining Conex in 1960, and **Frank X. Aschenbrenner**, who joined Conex after serving with the Bondware Div. of Continental Can.

Rettig

The **Hawley-Monk Co.**, Cincinnati, producer of inks, varnishes and related materials for the graphic-arts industry, has been acquired by **The Borden Co.** It will be operated as a div. of **Borden Chemical Co. C. O. Monk**, pres., Hawley-Monk, and **C. B. Hawley**, exec. v.p., will continue in the firm.

Snow

Dr. John E. Snow has assumed the duties of research director for the **Rap-In-Wax Co.**, Minneapolis. Dr. Snow, who holds a Ph.D. in organic chemistry, began his research career with **Hayden Chemical Corp.** and was in charge of chemical and plastics research in the Research Div. of **Curtiss-Wright Corp.** before his appointment to Rap-In-Wax. He will be headquartered in the company's central research laboratory. Rap-In-Wax operates five American plants and has a subsidiary and facility in Switzerland.

The Tiffin Art Metal Co., sub. Springfield Greene Industries Inc., Springfield, O., will take over the manufacturing for the corporation's new line of skin- and bubble-packaging machinery

[*Continued on page 166*]

New Exclusive Plax Liners

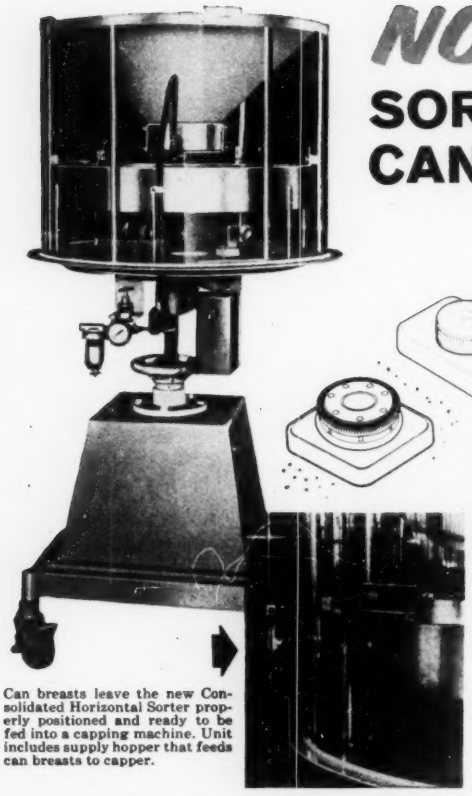
SOME PRODUCTS NEED EXTRA PROTECTION

Egg membranes form a protective inner sac around the egg's vital liquids. And now Plax builds exclusive inner liners into plastic bottle "shells" for hard-to-package liquids. These liners inhibit permeation and extend shelf-life for many pharmaceutical, cosmetic and drug products. Liquids that never could use plastic containers before can cash in on plastic's good looks, light weight and bouncy durability. This inner liner principle, coupled with the adaptability of Plax containers, could well apply to your products. Let us help.

PLAX

PLAX CORPORATION, HARTFORD, CONN. • In Canada: Plax Canada, Ltd., Toronto

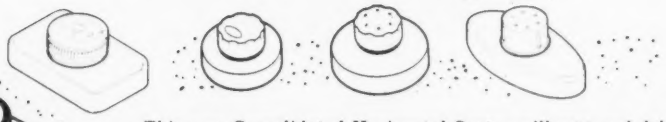
PLAX GIVES A PACKAGE A PLUS



Can breasts leave the new Consolidated Horizontal Sorter properly positioned and ready to be fed into a capping machine. Unit includes supply hopper that feeds can breasts to capper.

NOW!

SORT AND DELIVER CAN BREASTS TO CAPPER *automatically*



This new Consolidated Horizontal Sorter will sort and deliver can breasts to an automatic Capem Capping Machine at rates up to 175 per minute! It cuts your unit production costs — and keeps marring of enamel finishes to a minimum.

Square, oval, rectangular or round breasts — the new Consolidated Horizontal Sorter handles them all . . . automatically. Also available is a Consolidated Belt Sorter for handling tapered plastic jigger caps as well as tapered plastic fitments. For high speed sorting, choose the Consolidated Cage Sorter.

Let us help you figure just how fast one of these new machines will pay for itself through savings in your own packaging operations.

CONSOLIDATED PACKAGING MACHINERY CORP.

A Subsidiary of International Paper Company

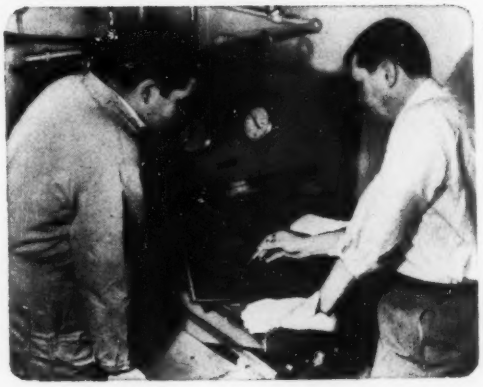
1400 WEST AVENUE • BUFFALO 13, N. Y.

"SEND FOR THE MAN FROM WILSOLITE"

NEW art forms bring up new problems. There's a Wilsolite technical service representative ready and able to help you with your particular technical problem.

This modern art form demands unique approaches and techniques. Solving problems in flexible printing requires highly specialized training . . . your Wilsolite "tech" service man has it.

Wilsolite Technical Service is organized to give you the kind of help or information you want. When you need help or advice, write, wire, or phone the Wilsolite office nearest you. Our background covers every phase of flexography.



GOODYEAR

Buna N Engraving Rubbers; Grey and Black; thicknesses 3/32" to 1/2", hardness range 20 to 80 durometer, including special inserts for register control. Unvulcanized rubber in Red, Grey and Black plus Stickyback for plate mounting and Goodyear Related Products.

"WILSOLITE"

Sheet matrix materials: Red or Black fill-in powders, embossing sheets, resin impregnated papers and cloth for shrink control; and perforated metal. Large stocks always on hand. Ask for prices and samples.

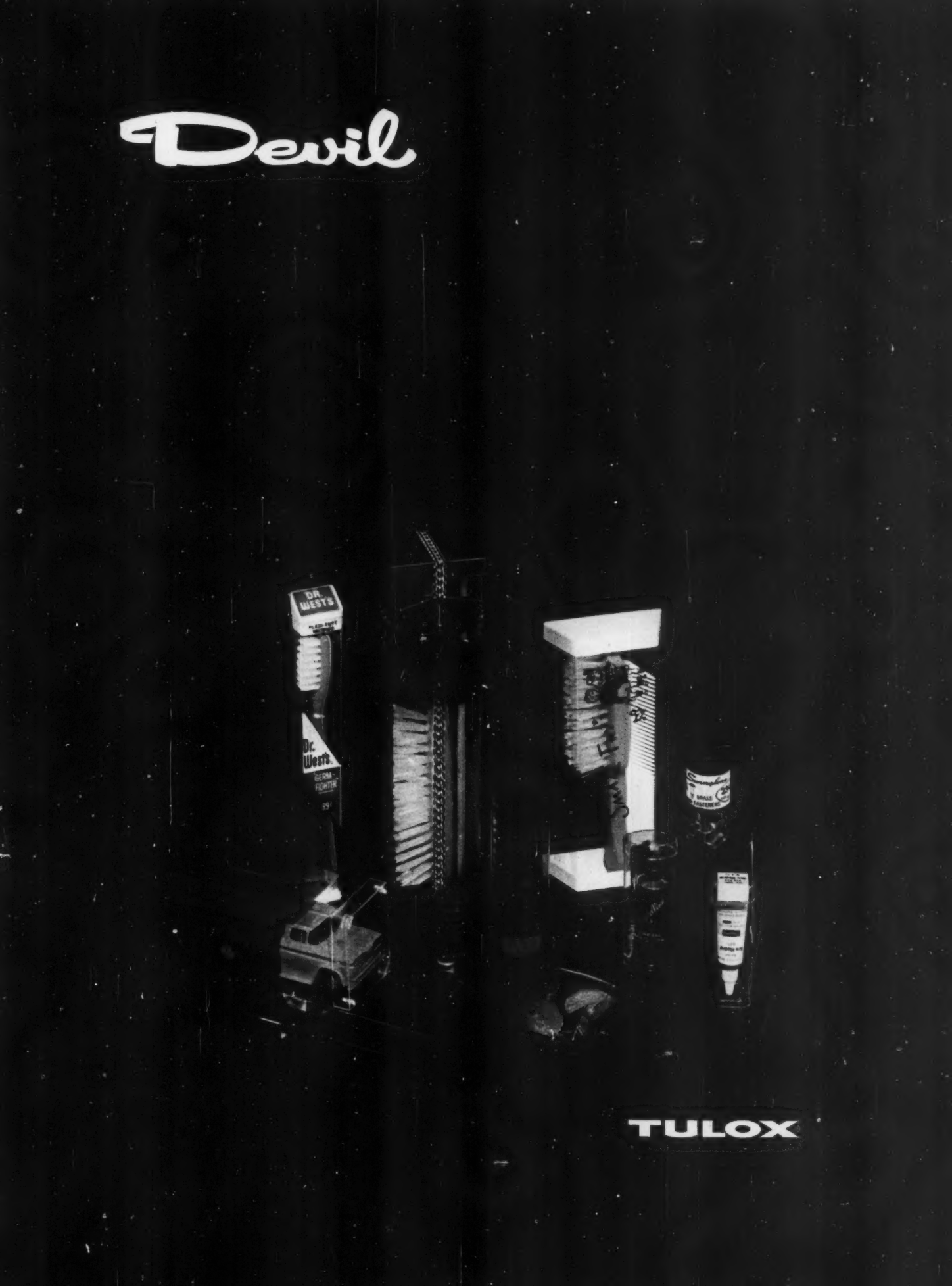
WILSOLITE CORPORATION

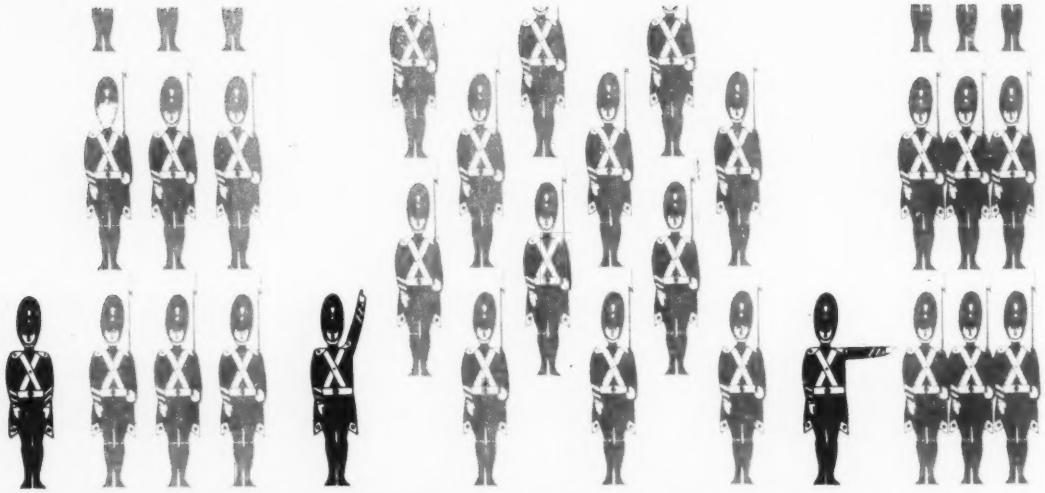
1827 Niagara Street, Buffalo 7, New York

OFFICES: Harkensack, N. J. • Atlanta, Ga. • Pensacola, Fla. • Fort Erie, Ont.

WAREHOUSES COAST TO COAST AND CANADA

Devil





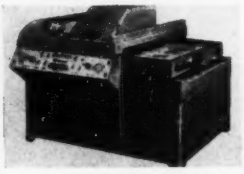
AUTOMATED STEP AND REPEAT with pinpoint precision on the new

ROYAL ZENITH MISOMEX

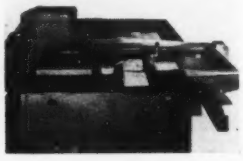
Fully automatic operation eliminates human error, saves operator time. Accuracy to .001", perfect contact and register. Speeds to 350 steps/hour with film, 70 steps/hour with plates. Incandescent and high-intensity Xenon light.

ROYAL ZENITH CORPORATION

NEW YORK CHICAGO LOS ANGELES



PUSHBUTTON MODEL
25" x 26", 29" x 43"



PUNCH CARD MODEL
50" x 72", 80" x 102"

ENGRAVED ROLLERS

If they're mill engraved,

they're mechanically correct

- Uniform engraving over entire surface, making each roller identical.
- Rollers made of steel for longer life.
- Flexible engraving specifications for wall width, top, bottom and depth of cell.
- Rollers apply all fluids, especially those of heavy viscosity.

Our quality mill engraving process is economical and faster than an acid etch process completed within a few hours in our own plant. We will make a special mill for anybody, anytime, at no extra charge.

APPLICATOR ROLLERS
EMBOSSING ROLLERS
ROTOGRAVURE CYLINDERS
TEXTILE PRINTING ROLLERS

CONSOLIDATED ENGRAVERS

division of AMERICAN-MARIETTA CO.
311 East 12th Street, Charlotte, N.C.

DAYLIGHT FLUORESCENT PRINTING INK IS THE CENTER OF ATTRACTION IN PACKAGING CIRCLES

DAY-GLO

Switzer Brothers, Inc.
4732 St. Clair Avenue, Cleveland 3, Ohio

manufacturers of DAY-GLO printing inks for gravure, letterpress, lithography, silk screen. Crocker Day-Glo Coated Papers also available.

Sales Offices: New York, Chicago, Los Angeles. Canada: A. R. Monteith, Limited, Toronto

Printed in U.S.A.

Here's where you find the people from
GARDNER

Gardner Packaging Sales Offices:

ATLANTA 5, Georgia
57 Rosswell Court, NE
CEdar 3-1968

BIRMINGHAM, Alabama
2303 20th Avenue, South
TRemont 1-1753

CHICAGO, Illinois
65 East South Water Street
DEarborn 2-6344

CLEVELAND 15, Ohio
1038 Hanna Building
CHerry 1-5851

GREENSBORO, North Carolina
1813 Pembroke Road
BRoadway 5-3311

MIDDLETOWN, Ohio
407 Charles Street
GArden 2-2772

MINNEAPOLIS 2, Minnesota
1055 Rand Tower Building
FEderal 5-7755

NEW YORK 36, New York
500 Fifth Avenue
CHickering 4-4477

PHILADELPHIA 2, Pennsylvania
225 South 15th Street
PEnnypacker 5-3950

ST. LOUIS 5, Missouri
8000 Bonhomme Avenue
PArkview 1-1726

GARDNER
A DIVISION OF
DIAMOND NATIONAL CORPORATION
MIDDLETOWN, OHIO

Plants & People

[*Continued from page 160*]

as well as polystyrene vacuum forming for industrial and consumer merchandise. **Donald R. Rorer,** former pres. and a principal of **Skin-Tite Packaging Corp.,** Mansfield, O., has joined SGI and is in charge of the new operation. The company plans to offer customers a complete service, including packaging-design advice, printing recommendations, board coating, time studies, equipment and quality standards. SGI also will do contract packaging.

James A. Stewart has been elected pres. of **Continental Can Co. of Canada, Ltd.,** Toronto. Mr. Stewart joined the company in 1938 and was elected a director and exec. v.p. in 1956. He succeeds **Frank A. Whittall,** who died May 4 in Toronto. Mr. Whittall had been in the can business since 1922 when he joined his father's firm, the **Whittall Can Co.** He was made director of sales in 1935 when that company became part of the Continental organization. In 1943 he became v.p.-sales for Continental of Canada. Mr. Whittall became pres. in 1952 and chairman in 1960.

Stewart

Dr. John H. Long has been elected a v.p. and member of the executive committee of **Hercules Powder Co.,** Wilmington, Del. Dr. Long has been general mgr. of the company's Paper Makers Chemical Dept. since 1956 and a member of the company's board of directors since 1958. He has been with Hercules since 1933.

Research facilities to serve the paper, boxboard, corrugating adhesives and other industries have been opened by the **A. E. Staley Mfg.,** Decatur, Ill. Known as the Staley Research Center, it will be under the direction of **Dr. M. L. Cushing** and is located in Decatur. The center includes a climate laboratory for paper research, a multipurpose pilot paper-coating machine and other research equipment.

Norman

William C. Norman has been elected to the newly created position of exec. v.p. and gen. mgr. of **The Crossett Co.,** Crossett, Ark. Mr. Norman joined Crossett in 1938 and his most recent post was that of v.p. and gen. mgr. In his new post he will assume greater responsibility in the projected growth of the company, according to **P. F. Watzek,** pres.

Simon Posen has been promoted to v.p. in charge of special assignments for **Gilman Paper Co.,** New York. He joined Gilman in 1949 as director of the New York Technical Dept. **Stuart Bergman,** who had been asst. director of technical services for the past six years, succeeds Mr. Posen as director of technical services.

Harry A. Trimm, Jr. has been appointed mktg. director for the Frozen Food Div. of **Stokely-Van Camp, Inc.,** Oakland, Calif. For the past 23 years Mr. Trimm was with **General Foods Corp.** in its frozen-food div. and was in a product marketing position before joining Stokely-Van Camp. As mktg. director, he will be responsible for coordinating the activities of sales, advertising, sales promotion, market research, packaging, traffic and new-product development. Mr. Trimm will be headquartered at the firm's Oakland executive offices.

Trimm

Prof. William Mendenhall of Bucknell University's Dept. of Mathematics has been retained as a technical consultant by the **Armstrong Cork Co.,** Lancaster, Pa. Dr. Mendenhall will provide specialized service and consultation on statistics, experiment design reliability and similar fields.

David W. Lynch, formerly gen. sales mgr. of **Vulcan-Associated Container Companies, Inc.,** Birmingham, Ala., has been elected v.p.-sales. His headquarters will be in Birmingham. Vulcan also has formed a new company for overseas management and manufacture. Known as **Vulcan International, S.A.,** the new company will have headquarters in Panama City, Panama, and representatives' offices in Birmingham, River Forest (Ill.) and New York.

Promotions

Robert D. Eklund: to district sales mgr., Middle Atlantic district, film operations, Packaging Div., **Olin Mathieson Chemical Corp.,** New York.

Roland H. Tatro: from asst. art director to art director, **Nashua Corp.,** Nashua, N. H.

Richard C. Winkler: to general mgr., Baltimore plant, **Container Corp. of America,** Chicago. **R. Howard Dale** and **Dario S. Lencioni:** to asst. sales mgr., Chicago Folding Carton Div.

Bruce J. Amacher: to administrative mgr., **C. Wayne Snell:** to service mgr. and **Glenn L. Baker:** quality & specifications mgr., Midwestern region, **Owens-Illinois Glass Co.,** Toledo.

P. R. Trailer: to sales-promotion training director, **Permacel,** New Brunswick, N. J. Permacel manufactures pressure-sensitive tapes and adhesives.

Richard Arnesen and **Donald L. Craddock:** from associate to v.p., **Scherr & McDermott Inc.,** Akron and New York. Scherr & McDermott is an industrial design firm.

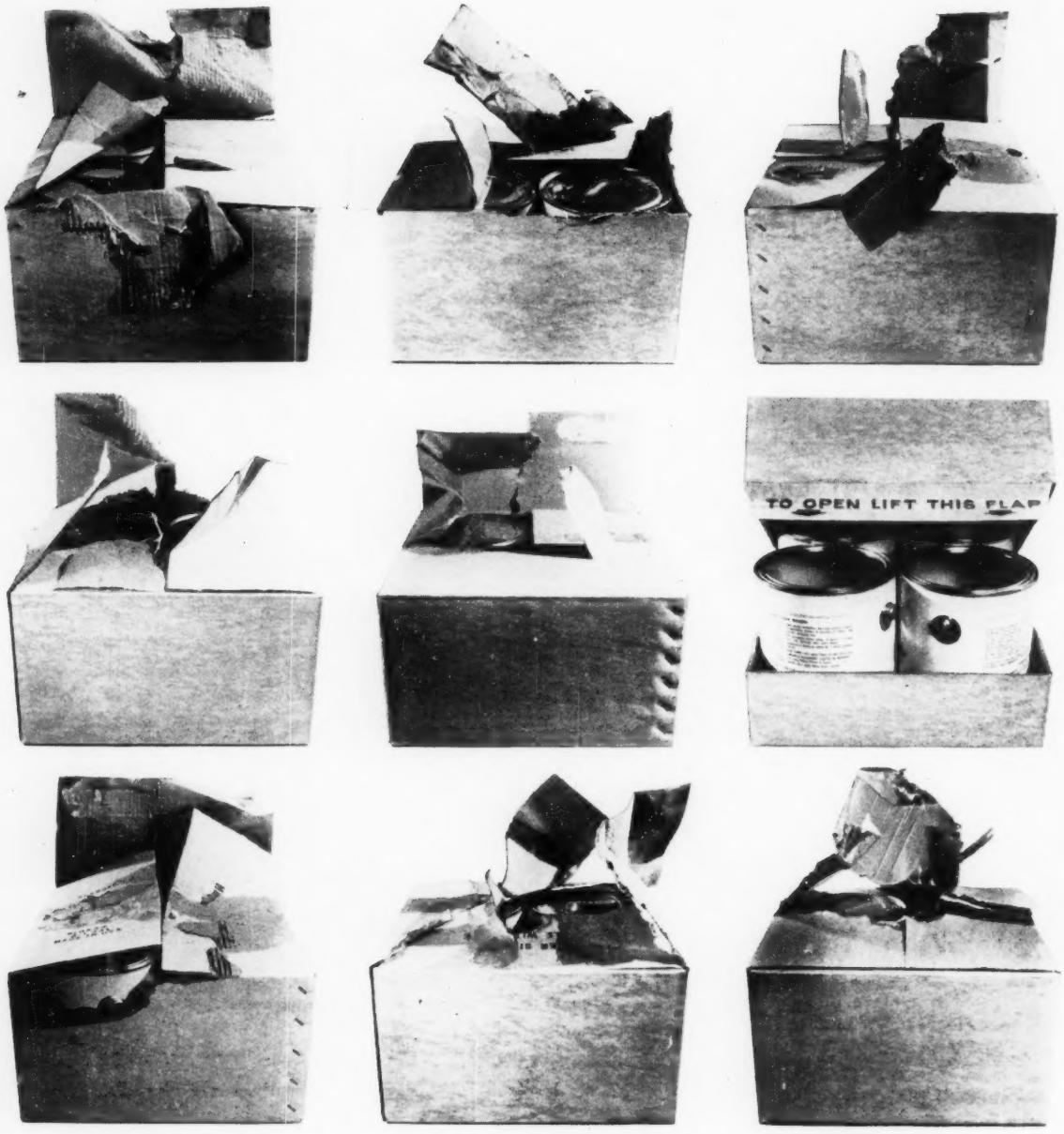
Joseph E. Harrington: from mgr. of Midwest sales office to domestic sales mgr., Hartford Div., **Emhart Mfg. Co.,** Hartford. **Kenneth R. Geckler:** to Midwest sales office as sales representative.
[*Continued on page 171*]

GARDNER

"It's the people from **GARDNER** ... you can always count on them to work out a simple answer to the most complicated packaging problem! They dig into every detail of our product, our production and our market . . . then they study every angle and come up with packaging that's practical and profitable . . . and it sells! No wonder they call it Persuasive Packaging service . . . we're as enthusiastic about it as they are!"

Write, wire or phone your Gardner sales representative for Persuasive Packaging service.

GARDNER A DIVISION OF DIAMOND NATIONAL CORPORATION • MIDDLETOWN, OHIO



WHICH ONE COMES FROM FIBREBOARD?

Which container was created by a team of industrial specialists—including designers and engineers, salesmen and scientists? Which container comes from the company where every major area is covered the same, sensible way: by teams of experts in that specific field? Which container, in short, comes from Fibreboard? Your customers can pick it out—and do.

The container from Fibreboard: MT-Quik, the flip-top shipping case. Just pull the flap; the whole top-half flips open. No more tug-of-wars, knicked fingers, frayed tempers. (And no more digging to remove the contents.) Two sizes hold four or six 1-gallon cans. Shouldn't your containers come from this kind of company, this type of concept? Write Fibreboard Paper Products Corporation, 475 Brannan Street, San Francisco. (Also New York, Chicago, Los Angeles, other major cities.)

do you need a **Royal** idea?

To make your product stand out at the point of sale, give it the captivating look of a Royal container. Nothing equals the eye-appeal . . . the break-resistant, bounce-right-back qualities of light, strong, colorful plastic. • Royal brings you the benefits of Celanese experience as a resin producer . . . a complete, experienced service including design assistance, mold production, manufacturing, labeling. Many of America's most famous brands are now selling in Royal containers. Shouldn't yours? Celanese Plastics Company, Royal Container Division, Dept. 108-G, 744 Broad St., Newark 2, New Jersey. Celanese®

MATERIALS FOR Celanese MODERN PACKAGING

POLYETHYLENE FILM . . . ACETATE FILM AND SHEETING . . . PLASTIC CONTAINERS

Celanese Plastics Company is a Division of Celanese Corporation of America
Canadian Affiliate: Polybottle Limited, Toronto and Canadian Chemical Company Limited, Montreal, Toronto, Vancouver • Export Sales: Amcel Co., Inc., and Pan Amcel Co., Inc., 522 Fifth Avenue, New York 36

Each year 13,000,000 cut flowers are delivered in boxes made by Standard Packaging

We don't presume to improve upon the beauty of a rose. But protecting its delicate bloom is another matter. • With the help of attractive, inexpensive folding boxes designed by Standard Packaging, today's florists find they can prevent flowers from being joggled, bumped or bruised – get them to their destinations, uncrushed and beautiful.

This is the kind of assurance that has encouraged Americans to "say it with flowers" to the tune of over $300 million a year. • We use florists as an illustration to point out that *no* product is too delicate, nor too difficult for Standard to package. Fragile or sturdy. Alive or inanimate. Liquid or solid. Our design engineers will be happy to prove it.

STANDARD PACKAGING CORPORATION

EXECUTIVE OFFICES: 200 EAST 42nd STREET, NEW YORK 17, N.Y.

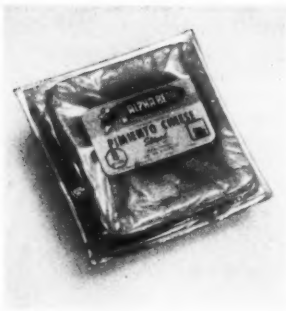
Standard's marketing approach to packaging pays off... in many unusual ways

How to package a tan at a time

This little tetrahedron-shaped "Ultra-Pak" contains just enough Vic Tanny sun lotion for one application. It is formed on a machine developed by William Stevens Company and is proving highly popular for many types of products. Customers like its convenience, while manufacturers find it reduces the amount of packaging material needed to enclose their product. Standard Packaging's *Modern Packages Division* furnished the poly cel film, completely printed and laminated.

Good deal for card players

This attractive coaster-ashtray set, made by Shawnee Potteries, cuts clutter on the playing table. Its unique carton, designed and manufactured by Standard's *Bradley & Gilbert Division*, serves a double purpose, too. To prevent breakage, the ashtrays are cemented on a paperboard insert, well separated from each other and from sides of the carton. When the ashtrays are pulled free, the paper remains stuck to the bottom, protecting table surface against scratches. Carton design carries out the playing card theme and gives maximum display to all four colorful ashtrays. Marvelous gift item.



FLEX-VAC package sells consumers 14-1

The power of graphic display has seldom been more emphatically proved! In a recent store test by the Alpha Beta food chain, this Flex-Vac® package outsold competitive packages 14 to 1. Alpha Beta vacuum packs its cheese on Standard's 6-12 Flex-Vac machines, attributes the sales increase to the crystal clarity of the film, which fits so snugly that shoppers "can almost count the pimientos!"

FILM AND FOIL PACKAGING • FOLDING AND SET-UP BOXES
• CLOSURES AND CAP LINERS • PAPER PAILS, CANS, TRAYS
• LABELS AND OVERWRAPS • LAMINATIONS

Plants & People

[*Continued from page 166*]

Emhart's Hartford div. produces glass-container manufacturing equipment.

Appointments

Stephen H. Senzer: from product mgr., Flexible Packaging Div., **Equitable Paper Bag Co.**, to v.p., **Flexicraft Industries, Inc.**, Bronx, N. Y. Flexicraft designs and manufactures flexible-packaging materials and film products.

Joe B. Smith: from H. Koch & Sons, to chief engineer, **Crate-rite, Inc.**, Oakland, Calif. Crate-rite designs and manufactures custom shipping containers.

Victor E. Pierson: from senior research chemist, **U. S. Rubber Co.**, Adhesives Div., Ft. Wayne, Ind., to technical sales mgr., **Anchor Adhesives Corp.**, Flushing, N. Y.

Obituaries

Roy E. Johnson, pres. of **Arenco Machine Co.**, New York, died May 19 at Lawrence Hospital in Bronxville, N. Y. Mr. Johnson, 61, was born in Schenectady, N. Y., but returned with his parents to Sweden where he received his engineering degree from Chalmers Institute of Technology, Gothenburg. He returned to the United States and joined Arenco in 1925. He served as director and v.p. until 1947 when he became pres. Mr. Johnson was a director of the Swedish Chamber of Commerce of the U. S. He was a member of the Rotary Club of New York, the American Society of Swedish Engineers, the American Society of Mechanical Engineers, American-Swedish Historical Society and Scandinavian American Foundation. Survivors include his wife and two daughters.

Johnson

Maurice J. Sullivan, former pres. and board chairman of **American Can Co.**, New York, died recently at his home in New York. He was 79 and had been with American Can since its founding in 1901. Prior to that, he was with Norton Brothers, one of the can companies that was merged to form American Can. In 1940 he was made pres. and in 1943 he relinquished the presidency for the post of board chairman. He continued as chairman until his retirement in 1949. He remained a member of the board and the executive committee.

Harry A. Price, founder of **Harry A. Price & Son**, a Dallas produce-packaging firm, died May 5 in Dallas. He was a former pres. of the **Produce Packaging Assn.** and founded his firm in 1944.

Edward Gustave Jacobson, advertising art director and package designer, died May 4 in Hudson, N. Y. He formed his own package-design firm in 1949.

Product and package both made of MARLEX. SPORTYAK* boat packed in TR-101 blown-tubing bag (pigmented red) made by Canton Containers, Inc., Canton, Ohio.

King-size bag of MARLEX* TR-101 film reduces packaging, handling, and shipping costs for popular new SPORTYAK

Dayton Bait and Marine Products Company of Dayton, Ohio, is marketing the remarkable seven-foot SPORTYAK (completely made of MARLEX high density plastic) in an equally remarkable plastic shipping bag eight feet long and 40 inches in diameter. Made of film blown from MARLEX TR-101 tailored resin, this giant bag is only seven mils thick . . . yet provides shipping and handling protection comparable to the heavier, bulkier cardboard cartons previously used.

Mr. J. M. Buening, Executive Vice President at Dayton Bait and Marine, says, "These TR-101 bags save us money . . . are better for our purposes than cardboard boxes. Packing is faster and requires less effort. Packaged boats are lighter and easier to handle . . . cost less to ship. Of course, with these boats, our main concern is protection from abrasion, marking, scarring, and the like. Thin as they are, MARLEX bags do the job . . . giving us factory-to-customer protection for the SPORTYAK. This film made of MARLEX TR-101 is amazingly tough."

In addition to outstanding toughness, bags made from MARLEX TR-101 high density resin can withstand extremes of temperature (from hot storage at 140°F to cold storage below zero F) . . . resist moisture, rot, bacteria, fungi, acids, alkalies and most chemicals. It also has been proven that thinner-walled TR-101 bags outperform thicker-walled low density polyethylene bags . . . having up to 38% more tensile strength and 2½ times the impact strength.

For marketers and packagers currently using paper, jute or low density polyethylene bags, cardboard boxes, metal or fiber drums . . . new TR-101 film can mean more efficient, less costly packaging. It offers dependable product protection . . . attractive packaging with colored or translucent film . . . and reduced freight costs. TR-101 film is also easy to seal with automatic or hand sealing equipment now available.

*MARLEX is a trademark for Phillips family of olefin polymers. †SPORTYAK is a trademark of Woodall Industries, Inc.

For more information, see your package supplier . . . or contact us.

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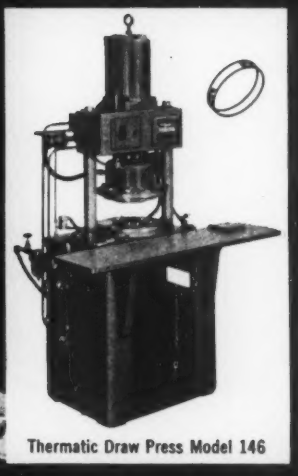
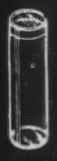
PHILLIPS 66 MARLEX PLASTICS

three-machine team



Thermatic Draw Press Model 146



Cylinder Fabricator Model 138

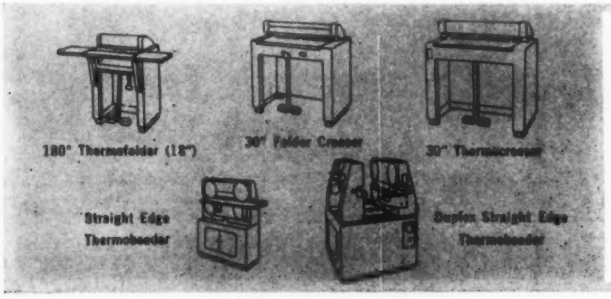
Thermatic Cylinder Beader Model 147

These three machines will produce finished cylinders and covers to make complete packages.

The Cylinder Fabricator forms and heat seals the cylinders (up to 8½" dia.). They are then placed in the chute of the Cylinder Beader (same operator for both machines). The rest is done automatically. The Beader grasps each cylinder, beads one (or both) ends simultaneously and ejects it into a hamper. High quality, matching covers are produced on Taber's electrically operated, pneumatically-powered Draw Press.

This three-machine team will turn out 500 to 900 cylindrical packages per hour from .005" to .015" thermoplastic sheet. Get the detailed story by filling in and mailing the coupon below.

Taber®



TABER INSTRUMENT CORPORATION, SECTION 12,
109 GOUNDRY STREET, NORTH TONAWANDA, N. Y.

MAIL bulletins describing your Cylinder Fabricator, Cylinder Beader and Thermatic Draw Press as well as information on other Taber plastic forming machines.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

EQUIPMENT & MATERIALS

[*Continued from page 52*]

using a split discharge nozzle that will accommodate double-case feeding by accumulating two vertically positioned patterns simultaneously. Two empty shipping cases are then correspondingly positioned—one over each nozzle section. A common support and lowering device is employed to accommodate both cases. Additional information may be obtained from the *Canning Machinery Div., FMC Corp., San José, Calif.*

All-plastic carboy for chemicals

Plastineers, Inc. has developed an all-plastic, 15-gal., drum-shaped carboy that has been granted ICC authorization for shipment of regulated chemicals without using an overpack.

It is said to be the first all-plastic carboy to be given this authorization. Made from a co-polymer of polyethylene, the carboy is injection molded in two parts, then welded together by a patented process. It is reported to be safe under the most adverse conditions and to exhibit exceptional impact strength at low temperatures. It is reinforced at the center and ends. Outside dimensions of the carboy are 17¼-in diameter and 20½-in. length. It weighs 17 lbs. when empty. Designed to allow the use of a standard polyethylene chemical pump, small and large amounts of chemicals may be dispensed without danger of spillage, the supplier says. Carbon black is added to the copolymer of polyethylene to prevent ultra-violet degradation and each unit is individually air-tested under water before shipment. Further information may be obtained from *Plastineers, Inc., 2127 E. Lake St., Minneapolis 7.*

Two new blister sealers

Two new low-cost plastic-blister sealing machines have been introduced by Erdco Engineering. Both bench-size two-station machines are designed for short-run packaging jobs. The supplier says that one inexperienced operator can load and seal a blister package every three seconds and that package sizes can be changed in less than five minutes. The Clear-Pack O7CP Jr. can seal blister packages 10 by 13 in. or smaller and requires 28 by 28 in. of bench area. The sealing plate automatically rotates and the machine seals one blister pack while the next is being loaded. It comes complete with air pressure regulator and controls. The Clear-Pack O6CP Jr. can seal packages up to 6 by 9 in. and requires 18 by 30 in. of bench area. It has a manually rotated table. Both models are available for purchase or lease. *Erdco Engineering Corp., Addison, Ill.*

Air-powered inflammable-liquid filler

A dual-nozzle, air-powered portable liquid filler designed for use with inflammable liquids is now available from National Instrument Co. Trade-named Filamatic Model DAA-5, the filler has a reported volume range of from a few drops to 8 oz. per stroke per nozzle, or a total of 16 oz. per stroke. A dual 16-oz. model can also be furnished on special order. Operating speed of the unit can be varied to provide a production rate adjustable from five to 40 fills per minute. The volume dispensed by each of two reciprocating piston pumps can be varied by means of a graduated micrometer mechanism calibrated in measured stages of 0.001 in. Interchangeable pump units adapt the unit for handling free-flowing, semi-viscous or viscous liquids. All liquid contacting parts are fabricated of stainless steel and Teflon, the supplier notes. Interchangeable glass and plastic pump assemblies are available for use with metal-sensitive liquids. *National Instruments Co. Inc., 2701 Rockwood Ave., Baltimore 15.*

Semi-automatic steel-strapping machine

Signode Steel Strapping has made available a semi-automatic power-strapping machine. The new M20L machine differs from the suppliers' automatic models only in having a lower strap chute. In using the machine, an operator positions the package, steps on the feed switch, inserts strap in the lower chute, and then steps on the cycle switch to tension and seal the strapping. The machine is said to be adaptable to high-production packaging lines. Standard chute lengths are 18, 24 or 30 in. Vertical guides, which deflect the strapping over the package toward the operator, will clear packages 15, 21, or 27 in. high. Accessories, such as a second strap dispenser to pre-load strap without interrupting production are available. *Signode Steel Strapping Co., 2600 North Western Ave., Chicago 47.*

Quick-opening multiwall bag closure

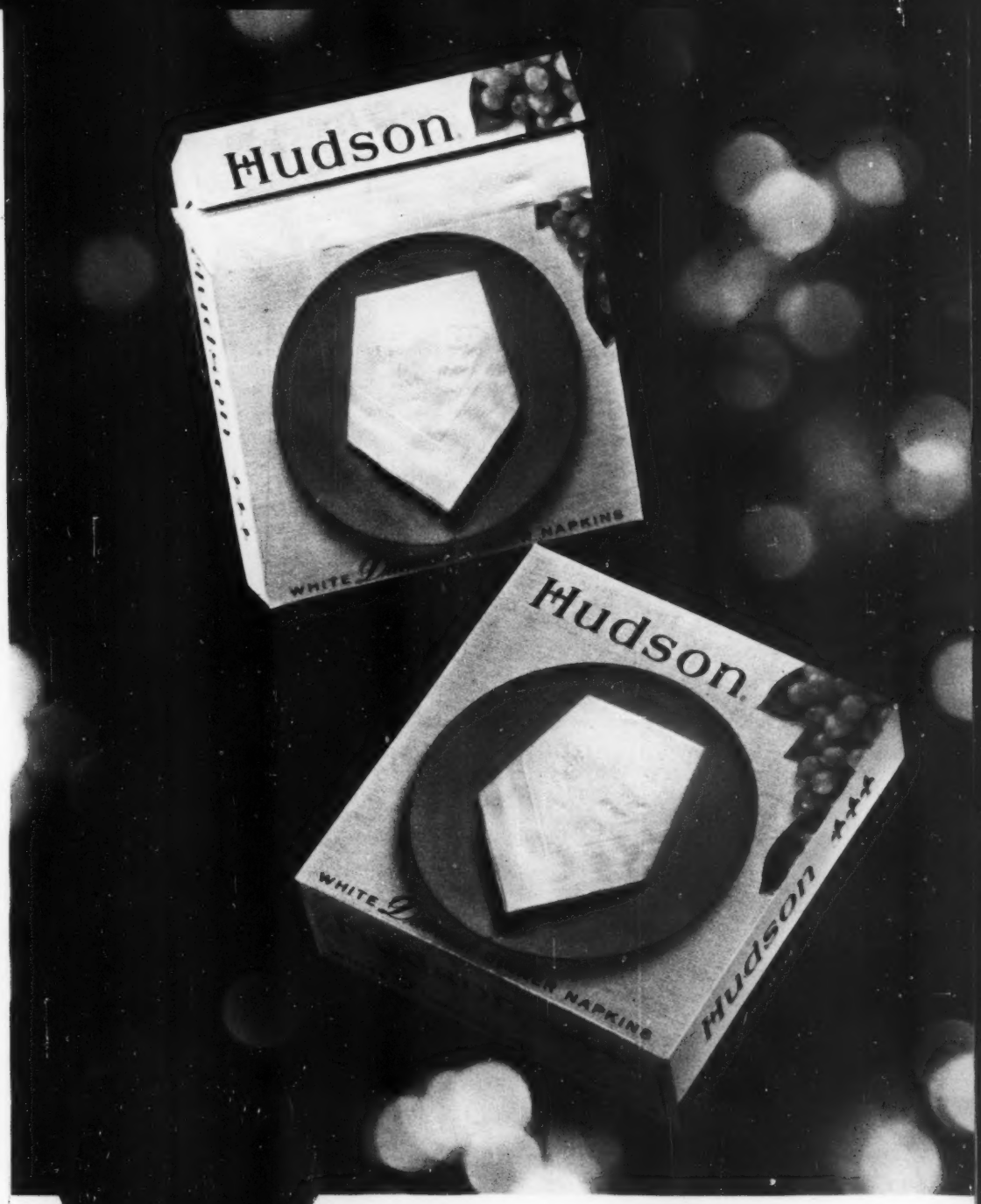
A quick-opening closure for sewn open-mouth and sewn valve multiwall paper shipping bags has been developed by

Bemis Bro. Bag. Known as Bemi-Strip, the closure is identified by a red tab at the seam of the bag. Pulling snaps the tab loose and frees the sewing thread. The bag can be opened partially to form a pouring spout if desired. The supplier reports that the closure will withstand ordinary stretch, breakage and sifting of the product at the seam. Recommended for such items as feed, fertilizer, seed, flour, grain, salt, ready-mix cements and chemicals, the closure is reported to offer protection at the bag seam equal to present methods of closing sewn bags and to save time and labor at the point of use. *Bemis Bro. Bag Co., 111-H N. Fourth St., St. Louis 2.*

Continuous high-speed bottle-can uncaser

Climax Products has introduced a continuous, high-speed bottle and can uncaser which is reported to be suitable for application in both beverage bottling and other packaging lines. Cartons of new containers are carried in a "reverse S" path which allows release of the containers upright on the out-feed conveyor which can be connected to any single filer. This Unimatic machine uncases up to 50 cases per minute of most sizes and types of bottles, jars and jugs, as well as metal cans and aerosol containers, says the supplier. The unit is mechanical in operation and is said to be trouble-free. For beverage applications, the machine uncases 12-oz. flat-top and crown-top cans plus 12-oz. throw-away bottles with only minor adjustments. Adjustment for taller containers can be made in 5 minutes by

[*Continued on page 178*]



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The Transwrap S-750 forms bags 3″ to 15″ long, 2″ to 8½″ wide, handles polyethylene and other flexible, heat-sealing materials. Package engineers designed the Transwrap S-750 for smooth operation and maintenance-free service. You can get full details by calling your nearest Package representative. Besides the Transwrap, he also has regular and high-speed frozen food over-wrapping machines.

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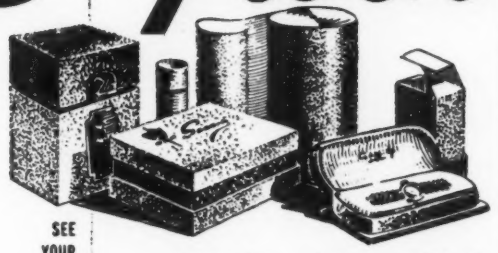

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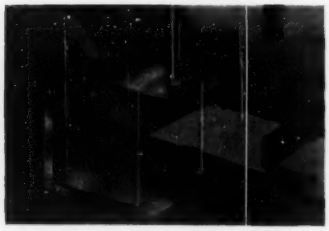
one operator, the supplier notes. The unit is also said to have great flexibility in in-feed and out-feed options. *Climax Products Div., Lodge & Shipley Co., 3055 Colerdin Ave., Cincinnati 25.*

New food package and machine

A food-packaging machine which fills and electronically seals an air-tight semi-rigid container has been installed in an Illinois ice cream plant. The machine, known as Paktronic, will be sold by Paktronic Machine Corp., an affiliate of Foils Packaging Corp. Foils Packaging holds the patents on the machine and the container and is the licensor of the process. The unit is said to be applicable for the packaging of freeze-dried foods. Sealing speeds are claimed to be twice as fast as by conventional methods. The container, which is said to be the only air-tight semi-rigid container available in the U. S., is a lamination of exterior aluminum foil on paperboard and an interior plastic coating. Printing can be done with flexographic or rotogravure presses. In present ice-cream application, the square-shaped container is said not to bulge, to speed up freezing, to be leakproof and to afford complete protection against contamination. First used in a half-gallon size, the pack eliminates the need for both inner waxed-paper liner and printed wrapper. Information about the machine is available from *Foils Packaging Corp., 307 E. Fourth St., Cincinnati.*



Plastic tamperproof aerosol-can seal

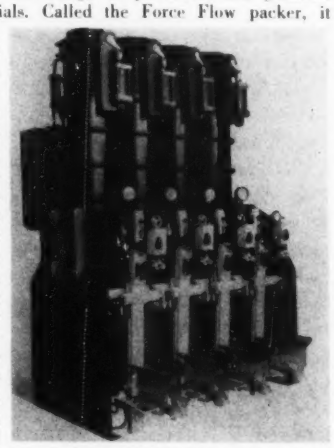
PharmaPlastics has made available a tamperproof seal for aerosol cans. Obtainable in transparent polystyrene or polyethylene, the closures are made for use with any standard 1-in. valve and, the supplier notes, are of a height which will clear most valve activators now on the market, with the exception of spout-type valves. Projections on the base of the seal are held in the annular undercut area of the valve cup and hold the seal in position to the extent that when removed the protective top ruptures and snaps off before the ring can come out. Once removed, the seal cannot be repositioned, thus making any tampering with the product readily evident. Open vents along the lower edge of the cap permit drying of the valve cup after passing through the water bath on the filling line. The seal reportedly can be used with most commercially available overcaps. For additional information contact *PharmaPlastics, Inc., 205 S. Smallwood St., Baltimore 23.*

New line of net-weighing machines

Thurman Scale Co. is marketing a new line of net-weighing machines to supplement its current line of industrial scales. The new units are available in several sizes with hoppers ranging in capacity from ½ cu. ft. upward (in ½-cu.-ft. increments) with weight capacity starting at 10 lbs. The net weighers are claimed to provide maximum weighing accuracy. Gravity or powered feeders are available. The controls for these weighers provide option of automatic re-fill, automatic discharge or completely automatic recycle. The electrical components used are said to be oil- and dust-tight. Bag sewing or sealing equipment is available as an optional accessory. For additional information, contact *Thurman Scale Co., 1939 Refugee Ave., Columbus, O.*

Multiwall valve bag packer

St. Regis has introduced a multiwall valve bag packer which handles a wide range of powdered and granular free-flowing materials. Called the Force Flow packer, it features a pressure chamber which is said to "densify" the materials so they pack faster and provide a more tightly filled bag. Reportedly, this permits higher production output, greater economy and, in some instances, reduction in bag sizes. The packer is said to be easily adjustable for quick change-over to different products and different bag sizes. It will handle sewn or pasted valve bags between 25- and 100-lb. sizes and is available in one- to four-tube models. Up to 28 bags per minute can be filled on the four-tube model, the company says. A clean filling operation is claimed by the supplier because of (a) an expandable rubber sleeve on the filling tube which seals off the bag valve during filling, (b) automatic time delay in the filling cycle and (c) controlled venting of each bag after filling. Weight accuracy is claimed to be within plus-or-minus 4 oz. on most products. The machine requires only one operator. *St. Regis Paper Co., 150 E. 42 St., New York 17.*



High-production blister-package sealer

A new four-station rotary blister-package sealer that reportedly offers high production at low cost is available from Tronomatic. The sealer is said to be useful where fewer loading operations per package are required. Lower tooling costs are obtained on this unit, which eliminates the movement of tooling for filling, sealing and emptying, says the supplier. After operators load the tooling trays with blisters, merchandise and cards the tooling revolves to its stationary position where the machine automatically seals and the finished blister packs are removed. The machine is automatically cycled during tray loading. The unit applies heat through the card to eliminate blister deforming (when the heated die gets too close to the blister) and poor seal (when the die does not get close enough to the blister). This method is claimed to assure a neater, stronger, full-flange seal. Heat sealing also can be performed at higher temperatures for faster sealing and greater production, the company reports. *Tronomatic Corp., 25 Bruckner Blvd., Bronx 54.*

Jam-proof straight-line unscrambler

A straight-line unit which unscrambles containers by take-away on three forward-direction belts, with a reverse-direction belt which returns containers from congested areas to prevent jamming, has been developed by Standard Metal Products. Each forward-direction belt moves at a progressively higher speed to permit safe, gradual acceleration to the maximum-speed take-away belt. As additional containers are loaded onto take-away belts, they push other containers onto faster-moving belts to automatically accom-

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fully automatic

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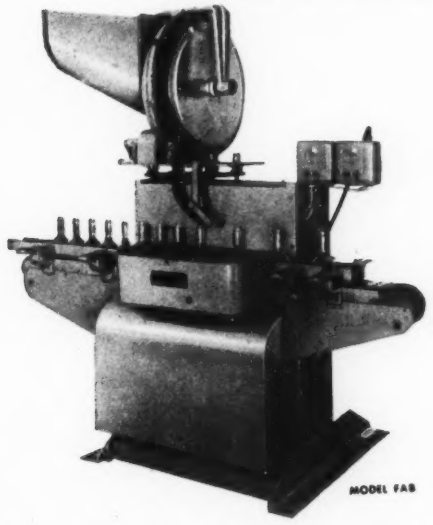

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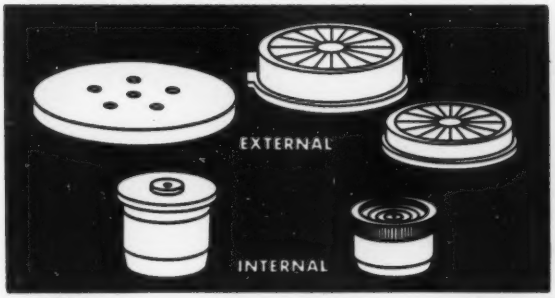

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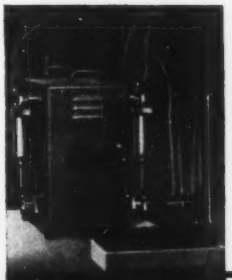

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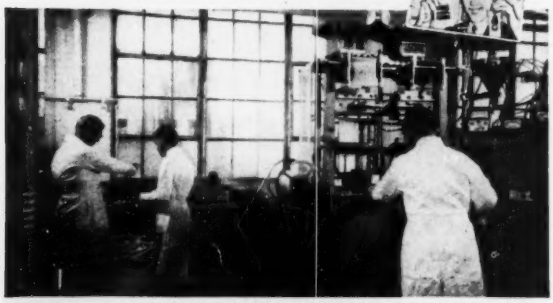


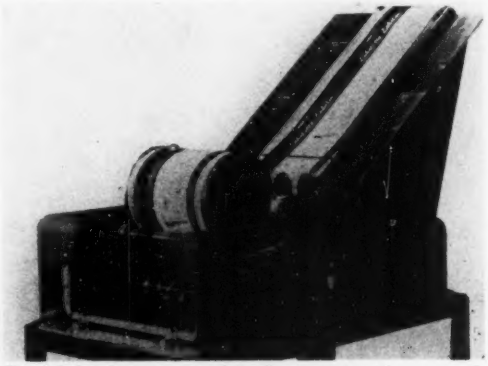
BFM **BROWN FILLING MACHINE COMPANY, INC.**
A subsidiary of SUNDSTRAND CORPORATION
ANN ARBOR, MICHIGAN

Equipment & Materials [*Continued*]

modate the increased volume. Containers in congested areas are forced onto the reverse-direction belt which returns them for a new start. The belts are made of self-lubricating acetal-resin plastic, said to provide a rust-proof, friction-free surface which facilitates smooth transfer from one belt to another. The belts are powered from a single variable-speed drive. Glass, metal and other types of containers can be handled, says the company. *Standard Metal Products, 123 N. Racine Ave., Chicago 7.*

Automatic paint-can labeler

An automatic paint-can labeler that can affix spot, face or wrap-around labels on half-pint, pint and gallon cans with ears has been introduced by the Labelette Co. Called Model 14C, the labeler is said to provide accurate labeling at nearly three times the speed of hand-labeling operations.



The labeler features a mobile floor stand with casters. It is operated by one man and can be used for steel, tin, glass, plastic or fibre containers. Change-over from one can size to another is said to take only two minutes. Powered by a half-horsepower motor, the unit requires 16 by 30 in. of floor space. Simplicity of design—to minimize repair and maintenance cost and facilitate cleaning and adjustment—is also claimed by the supplier. Contact *Labelette Co., 216 S. Jefferson St., Chicago 6.*

Small wrapping unit and heat sealer

The Clamco Div. of Cleveland-Detroit Corp. has introduced a new film-wrapping unit suitable for packaging meat, produce, cheese, ready-to-wear and paper products. Film is supplied from an 18-in. (maximum) roll and a single operator reportedly can be trained quickly to overwrap, bag wrap or sleeve wrap on the machine. Designated model 750, the unit weighs 55 lbs. and measures 21 by 27 in. It is equipped with a tension control mechanism, sealer and cutting wire. Its speed is reported to be up to 20 packages per minute. Also new from the supplier is an automatic heat sealer that is claimed to compare with more costly models. It is portable and produces a ⅛-in. seal in polyethylene up to 6 mils thick. The unit, which weighs 22 lbs. and measures 8 by 15 in., is said to have exact temperature control which remains constant on a sealing surface guaranteed against burnout. Speed is reported to be up to 60 seals per minute. *Cleveland-Detroit Corp., 5400 Brookpark Rd., Cleveland 29.*

Portable labeling machine and roll labels

A portable labeling machine and pre-printed roll labels are offered by Nashua's package-sealing division. Larger labels, perfect registration and design location, labor savings, better storage and longer shelf life are among the features cited for the new equipment, designated Model 210. Perfect registration and design location are said to be delivered automatically every time by the labeler, ending the problems of partial labels and lopsided cut-offs. Since the labels are prepared in roll form, the supplier says, moisture is sealed out and the labels are dispensed without curl. They are available in blue or red ink on white kraft tape. *Nashua Corp., Nashua, N. H*

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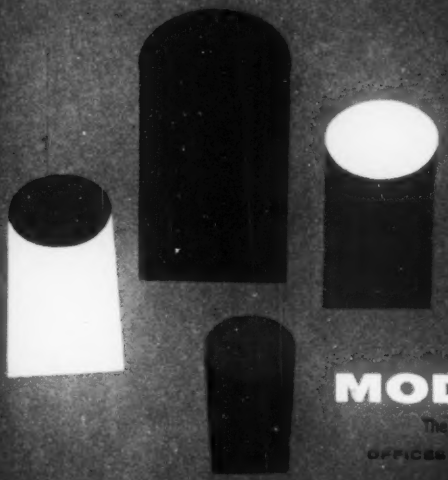

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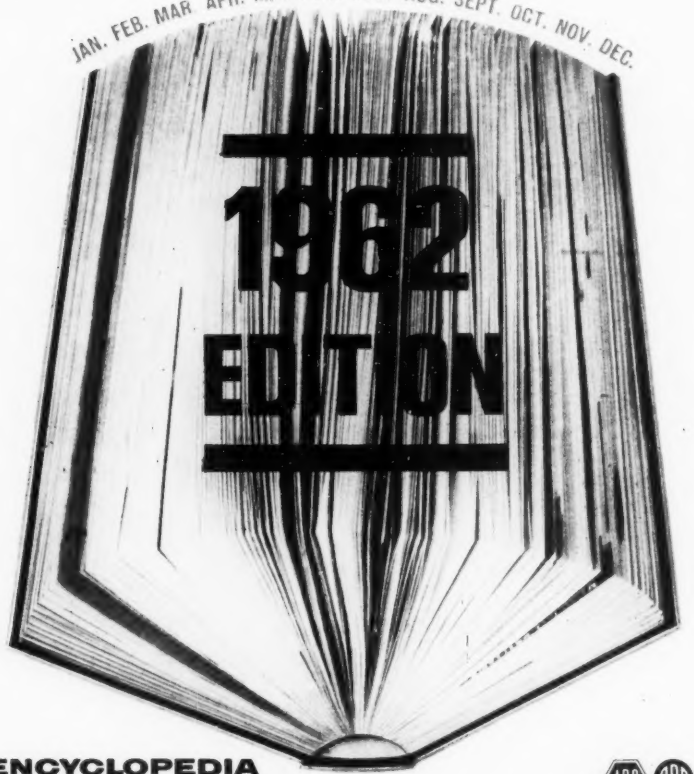

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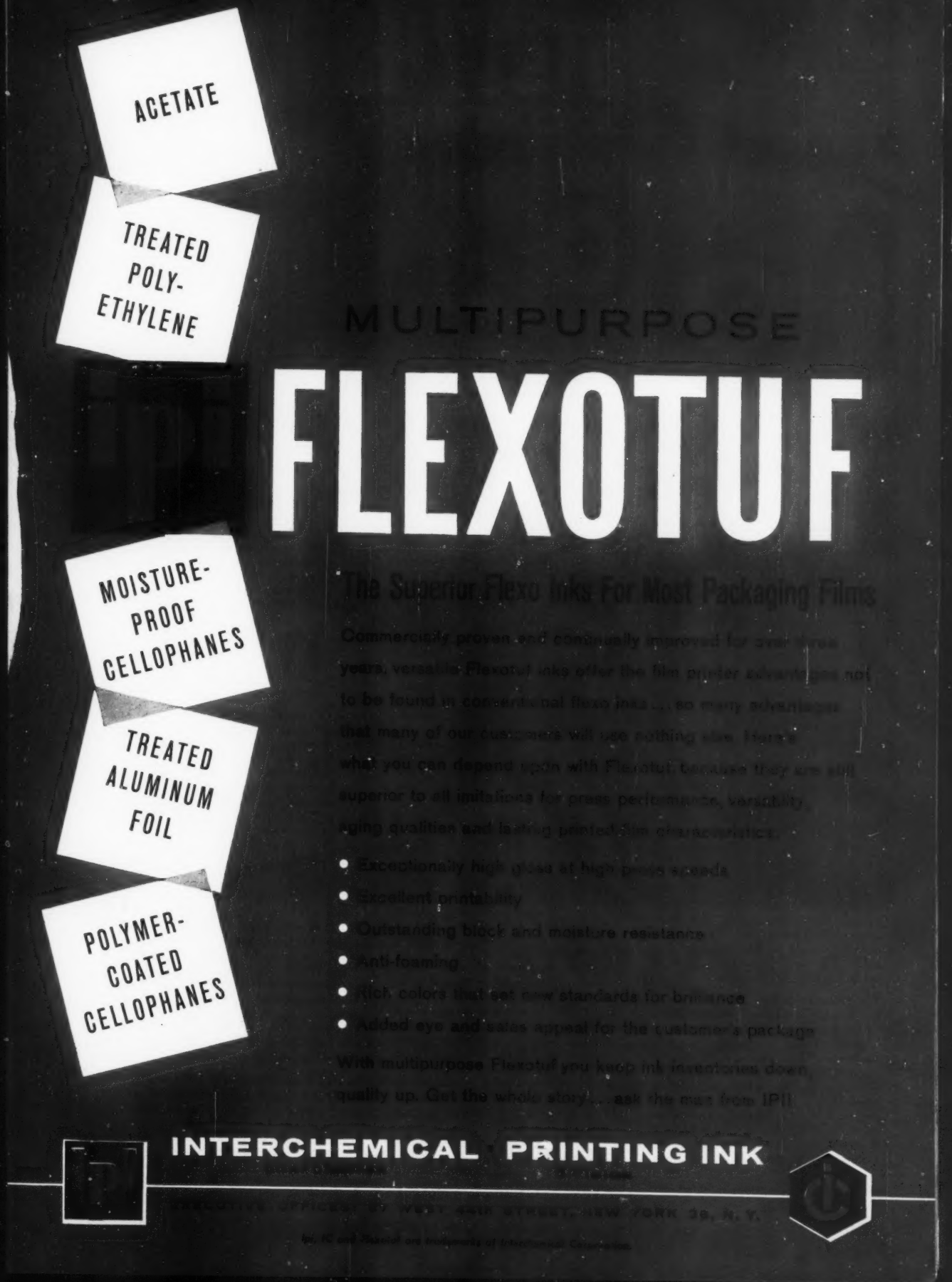
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FOR YOUR INFORMATION

The **Glass Container Mfrs. Institute** has introduced a 32-page booklet which describes the manufacture of glass containers. Entitled "The Genesis of a Jar," the booklet shows graphically, by means of 40 photographs with captions, the step-by-step process of glass-jar production. The booklet is available without charge on request to GCMI, 99 Park Ave., New York 16.

At the recent annual meeting of the **National Fibre Can & Tube Assn.**, **Charles H. Campbell**, Sonoco Products Co., Hartsville, S. C., was elected pres. He succeeds **W. F. J. Fienup** of R. C. Can Co., St. Louis. Area v.p.'s elected were: **E. B. Bangs**, Thames River Tube Co., Eastern area; **George R. Browner**, Mead Board Sales, Inc., Southern area, and **C. W. Mullery**, Mullery Paper Packages Inc., Western area. **J. J. Nelligan**, Stone Paper Tube Co., was elected treas. The board of directors also appointed **William E. Hughes** as managing director of the association to succeed **Paul S. Hanway** who has retired after 20 years' service. Mr. Hughes joined the association in June 1960 as asst. managing director and had been acting manager director since Mr. Hanway's retirement. Previous to this, he was manager of the Washington Div. of **Container Laboratories, Inc.**

Campbell

Thomas Nelson & Sons, New York, has published a new book titled *460 Secrets of Advertising Experts*. Edited by **Willard A. Pleuthner**, the 288-page book contains 23 chapters, each by a recognized advertising authority. The chapters contain ideas on copy, creative thinking, layout, media, marketing, merchandising, outdoor, packaging, production, retailing, research and sales promotion. Of special interest to packagers is a chapter titled "Twenty Things About Packaging We Have Learned In Twenty Years," by **J. Gordon Lippincott** of Lippincott & Margulies. The book is available, at $4.60 per copy, from the publisher.

The **Manufacturing Chemists Assn.** has issued a 63-page booklet titled, "Food Additives—What They Are/How They Are Used." It describes the various types of food additives and some of the tests used to prove their safety. The illustrated booklet contains an appendix which lists a number of additives that are on F&DA's "Generally Recognized As Safe" (GRAS) list, including more than 100 items employed in the manufacture of food-packaging materials. Also included is a bibliography and an index. Requests for single copies will be honored without charge when received from individuals on institution or organization letterhead. Copies in quantity for group distribution will be made available for 20 cents per copy. Address requests to the Manufacturing Chemists Assn., 1825 Connecticut Ave., N.W., Washington 9, D. C.

At the general meeting of the **National Flexible Packaging Assn.** in Chicago, **Harold N. Brush**, Munson Bag Co., was elected pres. He succeeds **E. S. Elgin**, Chase Bag Co. **Edward F. Burke**, Standard Packaging Corp., was elected exec. v.p. with automatic succession to the presidency in 1962. **John V. Shea** became treas. and **John M. Cowan** was re-named managing director and secy.

Professor James W. Goff of Michigan State University's School of Packaging was the moderator at the annual **Western Packaging Assn.** symposium on consumer trends. Held June 7 at the Roger Young Auditorium in Los Angeles, the session featured speakers on plastic containers, glass containers, metal containers, folding cartons, coated and laminated materials and films.

The Grand and National Halls at Olympia, London, will be the scene of the **Seventh International Packaging Exhibition**, to be held Sept. 5-15 in cooperation with the **Institute of Packaging**. Some 300,000 sq. ft. of floor space will house the over 300 exhibitors' displays. The exhibitors include 70 foreign manufacturers from West Germany, Switzerland, Austria, France, Italy, Holland, Belgium, Denmark, Sweden, United States and Canada. Among the new equipment to be shown are high-speed automatic filling, sealing and capping machines; cartoning and wrapping equipment; self-adjusting glue-tapers; bag-making machinery, and new types of closures for metal, glass, plastic, fibre and aerosol containers. Manufacturers will also show many new papers; improved transparent films with high-resistance to moisture, acids and temperature variations, and new sealing tapes, adhesives and inks for package printing. The **European Packaging Federation**, consisting of 18 member countries, will hold its annual general meeting during the exhibition. In addition, the Institute of Packaging, in association with the **Western Hemisphere Exports Council** and the **Exports Council for Europe**, will hold a convention on Sept. 6 which will feature talks by industrialists from Europe, the Commonwealth and the Americas on consumer packaging for export.

Events

July 2-4—**National Wooden Pallet Mfrs. Assn.**, 15th annual meeting, Chateau Lake Louise, Lake Louise, Alberta, Canada.

July 13-15—**National Wooden Box Assn.**, 1961 summer meeting, Cavalier Hotel, Virginia Beach, Va.

Aug. 14-18—**American Management Assn.**, workshop seminar, Packaging Management in Consumer Goods Companies, Colgate University, Hamilton, N. Y.

Aug. 14-18—**American Management Assn.**, workshop seminar, Defense Packaging, Colgate University, Hamilton, N. Y.

Aug. 20-23—**National Assn. for the Specialty Food Trade, Inc.**, seventh annual fancy food & confectionery show, Hotel Astor, New York.

Totten

A. Irving Totten, Jr., Reynolds Metals Co., has been appointed director of the **Research & Development Associates of the Food & Container Institute for the Armed Forces.** This advisory group takes battlefield feeding problems into private industry research laboratories and is responsible for finding better ways of making and packaging foods for combat use. Mr. Totten has been a member of the group for the past six years.

Harry M. Gray, pres. of Empire State Paper Research Associates and v.p. and director of mfg. of Sealright-Oswego Falls Corp., has been appointed to the faculty of the **State University College of Forestry at Syracuse University** as an adjunct professor. Mr. Cary will continue in his present capacity with Sealright-Oswego Falls. As an adjunct professor, he will lecture at the college of forestry and will act as a special counselor to the college with respect to research and technical problems in the pulp and paper field.

The **Packaging Institute** will hold its annual national forum at the Biltmore Hotel, New York, Oct 18-20. A total of 48 papers will be presented in 12 half-day seminars. PI is reportedly synchronizing the seminars in order that registrants may pre-select each paper to be presented. As in past years, the forum will have three concurrent seminars available at all times.

John R. Kennedy, pres. of Federal Paper Board Co., recently addressed the Paper Forum of the 14th annual convention of **The National Federation of Security Analysts** in Richmond, Va. His address, entitled "The Paperboard Industry In an Expanding Economy," concerned the factors which keep the

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F.Y.I. *[continued]*

paperboard industry a growing one and the role it plays in a growing economy. Among the factors Mr. Kennedy cited as reasons for the continued growth of the industry were the country's greatly expanding population and its rapid change-over to self-service selling methods for a large number of products.

At the 62nd annual meeting of the **National Wooden Box Assn.**, held recently in Boca Raton, Fla., **F. Perry Smith** was elected pres. He succeeds **H. S. Dunning.** Announcement was made that NWBA will sponsor a commercial standard on a modular system of cleated panel containers. Details will be available at a later date.

Gibbons G. Cornwell, pres. of **Denney-Reyburn Co.,** has been elected first v.p. of the **Tag Mfrs. Institute.**

The **National Paper Box Mfrs. Assn.** elected new officers at its recent annual meeting in Washington, D. C. Elected pres. was **Bill Price** of the Carolina Paper Box Co. **Bertram I. Gordon,** L. Gordon & Son, was elected v.p.; **G. W. Lane,** Packaging Corp. of America, treas., and **Norman T. Baldwin,** exec. secy. They will serve for two years each. Past president **Wallace Ungemach,** Wallace Paper Box Corp., was elected to a one-year term as director ex-officio. Others elected to the board were: **Eric Ohstrom,** Paul T. Freund Corp.; **E. M. Donnelley,** Palmetto Paper Box Co., and **Heinz Loeffler,** Exeter Paper Co.

Price

Eighty-two members of the containers and packaging industry attended a National Defense Executive Reserve Conference on May 23-24—called by the **Business & Defense Services Administration of the U. S. Dept. of Commerce.** The B&DSA executive reserve consists of a group of selected business leaders designated to assume executive positions in the Federal government in the event of national emergency. The conference was devoted to typical problems which the reservists will face if called to active duty. A briefing on the latest developments in non-military defense was also held.

The first International Symposium of Automatic Merchandising will be held Oct. 31-Nov. 1 in conjunction with the **National Automatic Merchandising Assn.'s** national convention and equipment exhibit. To take place at Chicago's McCormick Place, the NAMA has planned discussions, workshops and tours of vending installations as part of the symposium.

The 17th annual meeting of the **American Society of Industrial Designers** will be held Oct. 5-8 at the St. Catherine Hotel, Santa Catalina Island, Calif. The theme of the meeting is to be "Design Explorations."

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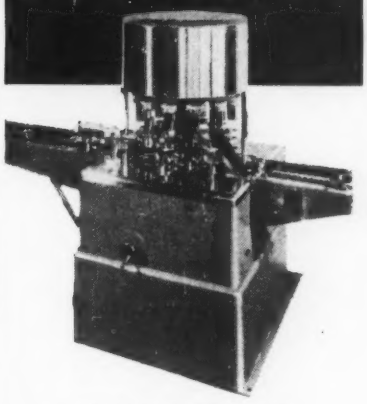

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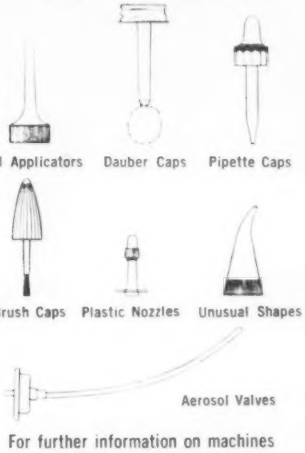

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U.S. PATENTS DIGEST

This digest includes each month a brief summary of the more important current patents which are of special interest to all packagers. Edited by H. A. Levey.

Packaging and Dispensing Beverage Concentrates, Irving Fox and Sidney Palley (to Cecil Wolfson, Jacksonville, Fla., and Fox-Wiprite Corp., Brooklyn, a corporation of New York). U.S. 2-977,231, March 28, An improved pressurized package comprising a pressure-tight container with beverage of regulated viscosity in it and having a discharge valve with a small discharge orifice of a size that will give a small high-velocity jet of the concentrate which will in turn effect self-agitation of the aqueous liquid (such as milk or water) into which the jet is discharged, to form the finished beverage without the necessity of stirring or agitating.

Method and Apparatus for Forming Sealed Packages, Jean Frechtmann and William Treu, New York, N.Y. U.S. 2,977,729, April 4. The method of forming a fluid package which comprises the steps of forming a tube section of multiple, continuous, substantially coextensive, concentrically arranged soft thermoplastic tubing, sealing one end of said tube section, filling said tube section with a fluid, sealing the other end of said filled tube section and laminating said multiple tubing to one another.

Wrapper Registration Control, Robert L. Ardner, (to Lynch Corp., Anderson, Ind., a corporation of Indiana). U.S. 2,977,730, April 4. In a registration control mechanism for a wrapper or the like having registration areas spaced therealong, a pair of registration area sensing means displaced from each other in the direction of travel of the wrapper for simultaneously sensing two different points of one registration area.

Wrapping Machine, Leonard Brooks, Edwin Hall Lazenby, and Peter Gordon Wilson, (to The Forgrove Machinery Co. Ltd., Leeds, England, a company of Great Britain). U.S. 2,977,731, April 4. A wrapping machine comprising a wrapping mechanism, a continuously travelling band conveyor for supplying articles to a delivery station, a stop at the delivery station for arresting articles on said conveyor to form a bank of articles thereon abutting against said stop.

Wrapping Machine, Clarence F. Hyrne, Miami, Fla. U.S. 2,977,735, April 4. A packaging device of the character described that is adapted to form a tubular envelope from a continuous section of thermoplastic material for receiving articles to be encased.

Machine for Producing Containers, Vincent D. Hery, (to The American Tool Works Co., Cincinnati, Ohio, a corporation of Ohio). U.S. 2,977,860, April 4. A machine for forming a folded container, said machine comprising a movable support plate, and means adapted to receive a notched rectangular blank and to deposit said blank upon the heretofore mentioned support plate.

Carton Making Machine, Alex S. Gibb, (to Continental Can Co., Inc., New York, N.Y., a corporation of New York). U.S. 2,977,861, April 4. In a machine for constructing a carton from a blank having a rectangular body, side and end flaps joined to said body, and corner flaps joined to said side flaps.

Tagging Apparatus, Carmelo A. Di Maggio, James W. Healy, and Ralph M. Lamade, Jr., (to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts). U.S. 2,977,862, April 4. Apparatus for automatically applying a tag with a displaceable tab to the edge of an item, comprising feeding means for supplying a string of connected tags, advancing means incorporating a forward and return cycle for intermittently advancing tags during the forward cycle.

Swivel Closure for Rotatable Containers, Donald F. Smith, (to the United States of America as represented by the Secretary of the Army). U.S. 2,978,004, April 4. In a flexible container, a swivel assembly carried by the container and including an annular swivel element, means carried by the swivel assembly to rotatably secure the swivel element to the swivel assembly exteriorly of the said container.

Bread Wrapper Sealing Device, Thormod Jensen, (to St. Regis Paper Co., New York, N.Y., a corporation of New York). U.S. 2,978,007, April 4. A device for heat-sealing the bottom overlapping edge portions of a thread wrapper on a wrapped loaf of bread.

Can Arranging Machine, Victor H. Hinthorn, (to Burt Machine Co., Inc., Baltimore, Md., a corporation of Maryland). U.S. 2,978,097, April 4. In a can arranging machine comprising a distributor, means to feed a continuous line of cans to the distributor, said distributor comprising an endless conveyor having flights thereon and having in its path an upwardly directed course.

Shipping and Display Package, Robert C. Bush, (to Corning Glass Works, Corning, N.Y., a corporation of New York). U.S. 2,978,099, April 4. As an article of manufacture, a carton composed of paperboard or the like closed on all sides; two multi-compartimented assemblies identical as viewed from above, for retaining articles in such carton in an upright position.

Bags, Russell J. Williams, Clayton and Charles V. Brady and August F. Ottinger, (to Bemis Bro. Bag Co., St. Louis, Mo., a corporation of Missouri). U.S. 2,978,164, April 4. A bag having at least one end closure constituted by a line of stitching driven through the walls of the bag and securing together the walls adjacent said end of the bag.

Packaging Folder, Bolding, (to Standard Packaging Corp., New York, N.Y., a corporation of Virginia). U.S. 2,978,165, April 4. A packaging folder made from a cut and scored blank comprising means defining recesses in opposite edges of the blank.

Process and Apparatus for Packaging Meats and Other Articles, Roy Stuart Smith, (to National Distillers and Chemical Corp., a corporation of Virginia). U.S. 2,978,851, April 11. The method of packaging articles in a heat fusable thermoplastic film material such as polyethylene film, consisting essentially of the steps of wrapping the article in the film by folding the film under the article so trat the edge portions overlap.

Bag Top Closing and Sealing Machine, Frank L. Hopkins and Richard H. Ayres, (to Bemis Bro. Bag Co., Minneapolis, Minn., a corporation of Missouri). U.S. 2,978,852, April 11. In an apparatus for applying a strip of thermoplastic coated tape over the upper marginal edge portion of the walls of a bag top whose walls have previously been secured together in flatwise relation by a row of chain stitching extending the length of the bag top.

Apparatus for Producing Multipocket Packages, Robert G. Price, (to Thomas J. Lipton, Inc., Hoboken, N.J., a corporation of Delaware) U.S. 2,978,853, April 11. An apparatus for manufacturing multipocket packages comprising a funnel-like folding member having a pair of downwardly converging side walls, a back wall and an open front.

Merchandising Package, Joseph Henry Fredette, (to American Can Co., New York, N.Y., a corporation of New Jersey). U.S. 2,979,193, April 11. A merchandising package comprising a cylindrical container secured thereto in an end seam.

Package Closure and Method of Forming Same, John Henchert, (to Continental Can Co., Inc., New York, N.Y., a corporation of New York). U.S. 2,979,224, April 11. In a container of the character described, a body having a bottom and a surrounding side wall defining a product receiving space, said body being defined at its upper extremity by a perimeter ledge merging outwardly into a flange turned downwardly, outwardly and upwardly to provide a shallow sealing compound receiving channel and a closure flange.

Closure Cap and Sealed Package, Harry E. Stover, (to Anchor Hocking Glass Corp., Lancaster, Ohio, a corporation of Delaware). U.S. 2,979,218, April 11. In a sealed package of the press-on closure type, the combination of a glass container having an annular enlargement on the side thereof adjacent the container mouth comprising in vertical cross section a pair of maximum diameter bead-like portions spaced vertically from one another with a relatively shallow groove therebetween.

Heat Sealable Carton and Method of Sealing Same, Ernest C. Pellaton, and Wilfred A. Klapperich, (to Fibreboard Paper Products Corp., San Francisco, Calif., a corporation of Delaware). U.S. 2,979,247, April 11. A carton compris-

For more detailed information, copies of patents are available from the U. S. Patent Office, Washington 25, D.C., at 25 cents each, payable in currency, money order or certified check. Postage stamps are not acceptable.

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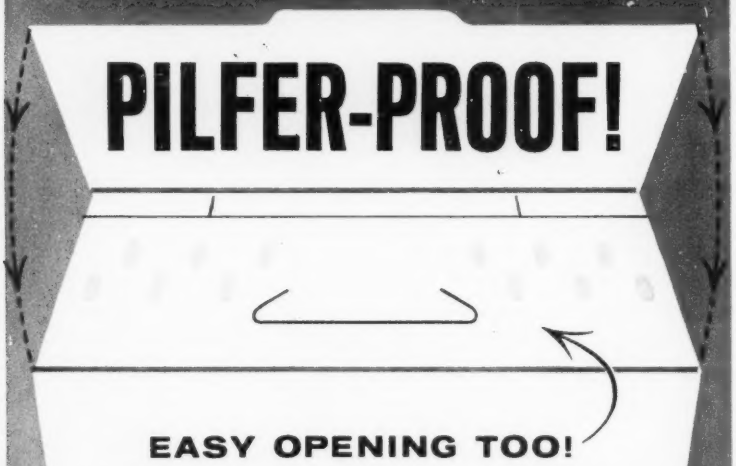

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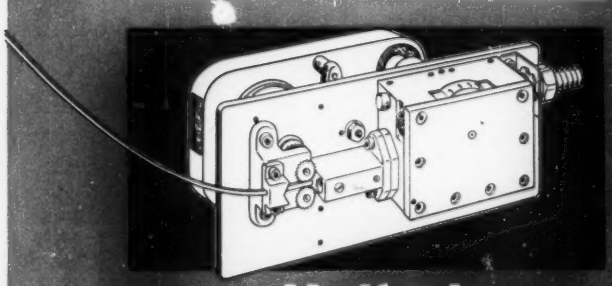

United

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Patents [*Continued*]

ing a blank having a plurality of side wall panels and a plurality of end wall panels hingedly connected together in alternate side by side relationship.

Machine for Inserting Articles into Cartons, Robert K. Galloway, (to Food Machinery and Chemical Corp., San Jose, Calif., a corporation of Delaware). U.S. 2,979,873, April 18. In a machine for inserting articles into cartons, a conveyor for carrying the articles in regular single file sequence, a second conveyor parallel to said first conveyor for carrying erected cartons in opposition to the articles on said first conveyor.

Container Closing Apparatus, Walter J. Ringel and Jack M. Wheaton, (to Owens-Illinois Glass Co., a corporation of Ohio). U.S. 2,979,874, April 18. In combination a horizontal turntable positioned with its axis disposed vertically and rotatable thereabout to advance jars, while supported in normal upright positions thereon, through a jar closing zone in which screw-type closure caps are applied to the jars.

Box, Chester E. Howell, Jr., and Harwood S. Taylor, Jr. (to F. M. Howell & Co., Elmira, N.Y., a corporation of New York). U.S. 2,980,241, April 18. In a paperboard combination shipping and display container of the type comprising a box and an insert therefor, said box including a bottom, opposed vertical sides, and opposed ends having sloping inner walls converging toward said bottom.

Carton Closing Mechanism, Robert K. Galloway, (to Food Machinery and Chemical Corp., San Jose, Calif., a corporation of Delaware). U.S. 2,979,876, April 18. In a carton closing mechanism, a conveyor for conveying an erected carton along a predetermined path with the carton disposed transversely of the conveyor, said carton including flaps hingedly connected to the lower and upper panels of the carton.

Article Packing and Dispensing Carton, Harold Amatel, (to Wesinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania). U.S. 2,980,240, April 18. The combination which comprises a packing and dispensing carton and a plurality of articles packed therein, each of said articles having an inwardly tapered neck portion at one end.

Open Faced Cartons for Collapsible Tubes, James S. Miller, (to The Procter & Gamble Co., Cincinnati, Ohio, a corporation of Ohio). U.S. 2,980,242, April 18. In a carton adapted to display a collapsible tube, a saddle formed by two cuts of substantially equal length, said cuts being in spaced relation to each other and each extending across at least a substantial portion of each of two adjoining panels of said cartons, but not completely across both of said adjoining panels.

Container, Package, and Manufacture of Package, Carl B. Stoker, Jr., (to The Goodyear Tire & Rubber Co., Akron, Ohio, a corporation of Ohio). U.S. 2,980,245, April 18. A package composed of an object, a stiff, bendable, rectangular backing bent over one surface of the object and transparent cover film adhered directly to the backing only at

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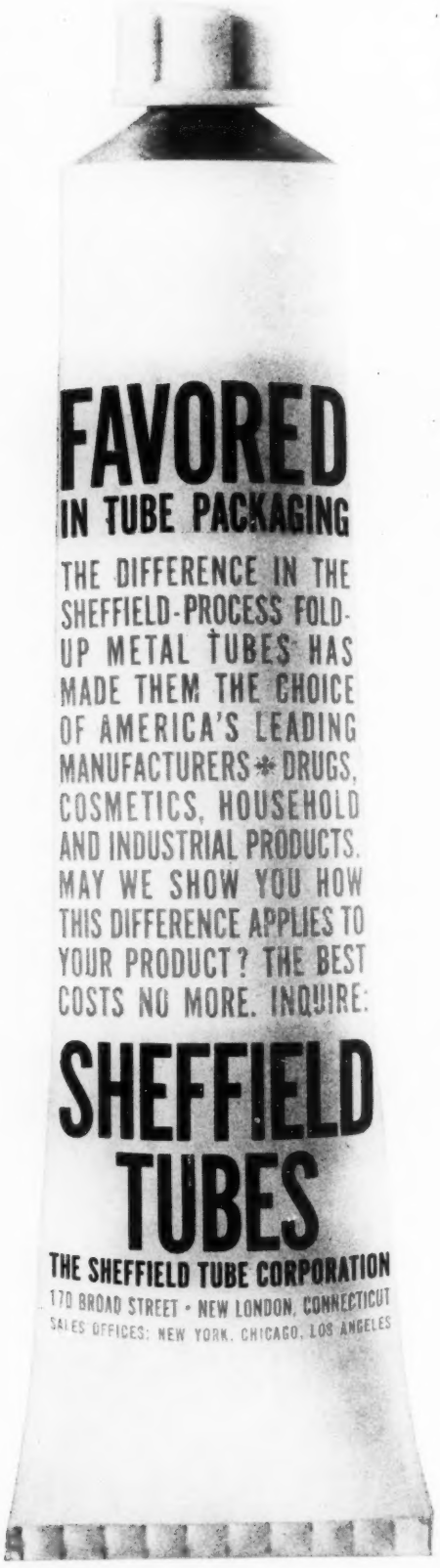
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Patents [*Continued*]

areas at opposite edges of the backing whereby a sleeve with mouths at opposite ends thereof is formed.

Carrier for Containers, Richard E. Paige, (to Container Corp., of America, Chicago, Ill., a corporation of Delaware). U.S. 2,980,249, April 18. A carrier for a plurality of chimed cans comprising an open end tube made of hingedly connected panels, at least one of which has a first locking mechanism folded out of the plane of the panel.

Bottle Spotting Apparatus for Labeling Machines, Sidney T. Carter (to Geo. J. Meyer Mfg. Co., Cudahy, Wis., a corporation of Wisconsin). U.S. 2,980,278, April 18. A machine for labeling bottles of substantially circular transverse horizontal section and each provided with a spotting element and wherein a conveyor uninterruptedly moves the bottles to be labeled along a predetermined path.

Metering Valve for Aerosol Container, Benjamin de Gorter, (to Riker Laboratories, Inc., Los Angeles, Calif., a corporation of Delaware). U.S. 2,980,301, April 18. A metering valve for dispensing measured volumes of fluid material from a container.

Container, Frederick C. Baselt, (to American Can Co., New York, N.Y., a corporation of New Jersey). U.S. 2,980,311, April 18. A fibre container comprising a tubular polyhedral body having an even number of relatively wide vertical side walls and an equal number of relatively narrow vertical panel walls disposed alternately around the body perimeter.

Bag, James L. Quinn, (to Bemis Bro. Bag Co., St. Louis, Mo., a corporation of Missouri). U.S. 2,980,313, April 18. A desiccant bag formed of a rectangular blank of non-woven fabric folded in half on a heightwise fold, said fold constituting one side edge of the bag.

Method of Producing Plastic Containers, Alexander George Makowski, (to American Can Co., New York, N.Y., a corporation of New Jersey). U.S. 2,980,963, April 25. A method of producing a plurality of decorated thermoplastic containers of substantially uniform finished length which comprises forming a plurality of finish diameter thermoplastic tubes, each open at both ends, by a process including an extrusion forming step whereby residual stresses remain in the tube walls.

Wrapping Machine, Bengt A. Arvidson, (to Miller Wrapping & Sealing Machine Co., a corporation of Illinois). U.S. 2,981,043, April 25. A wrapping machine for making corner wraps in a thin wrapping material such as cellophane or the like banded about an article and having corner flaps extending from the opposite ends thereof.

Squeeze-to-use Type Container, Andrew A. Root, (to American Can Co., New York, N. Y., a corporation of New Jersey). U.S. 2,981,444, April 25. A squeeze-to-use container for dispensing pulverous material, said container including a substantially cylindrical hollow body of flexible plastic material, metal closures secured to opposite ends of the body.

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2. CIRCLE the corresponding numbers on the post card
3. FILL IN the information requested
4. MAIL — no postage required

Manufacturers' Literature

Described below . . . the latest literature, catalogs and brochures from the packaging industry. Dollar saving and dollar making ideas and data . . . available without charge.

EQUIPMENT • SUPPLIES • SERVICES

CASE UNLOADER & UNSCRAMBLER. Automatic and fully adjustable case unloader and unscrambler which handles all glass container sizes in commercial use is described in this 4-page folder. ABC Packaging Machine Corp. (151-G)

AEROSOL PRESSURE BURETTE AND HAND CRIMPER. Illustrated sheets describe pressure burette for small lot and laboratory work. Burette is portable, calibrated in 5 cc graduations. Second illustrated sheet describes hand crimper for crimping aerosol valve caps. Aerosol Machinery Co. (152-G)

PRESSURE SENSITIVE LABELS. 4-page folder shows complete line of labels for office, commercial and industrial uses, including small mailing and caution labels, plain addressing labels, title labels, pricing and coding labels. Allen Hollander Co., Inc. (153-G)

FLUOROHALOCARBON PACKAGING FILMS. 6-page illustrated booklet gives properties of "family" of fluorohalocarbon films. Films are sterilizable by steam, irradiation or chemical means, can be heat formed, heat sealed or heat laminated. General Chemical Div., Allied Chem. Corp. (154-G)

PACKAGING FILMS. 4-page brochure lists major features of two packaging films and their packaging applications. Films are said to eliminate bag failure for packaging such food items as pretzels, macaroni products and candies. American Viscose Corp., Film Div. (155-G)

PROTECTIVE LININGS. 49-page test chart manual is designed to help steel container users, manufacturers and reconditioners select proper protective linings. Describes each of this company's linings in detail, outlines test program and explains the evaluation system used. Bradley & Vrooman Co. (156-G)

CUSTOM PACKAGING. Illustrated 8-page brochure describes facilities and service of this company. Outlines advantages of single-source responsibility for design, manufacture and quality control of integrated packages and availability of a wide range of materials and processes. Creative Packaging, Inc. (157-G)

POUCH MACHINE. 4-page illustrated folder gives specifications, blueprints of pouch maker operating on continuous motion principle and capable of handling wide range of materials at speeds up to 300 units per minute. Delamere & Williams Co. Ltd. (158-G)

ACETAL RESIN FOR AEROSOLS. 6-page folder discusses use of acetal resin for aerosol packages. Advantages are that acetal resin can be molded economically into almost any desired size and shape, good colorability, textured and marbelized surface are possible, freedom from corrosion. Polychemicals Dept., E. I. DuPont De Nemours & Co., Inc. (159-G)

SHOCK OVERLOAD INDICATOR. 4-page brochure illustrates and gives schematic diagrams and ordering information for models of shock indicators consisting of a spring-loaded weight with an integral trigger which engages with a spring-loaded sleeve. When tripped, the sleeve moves along a guide rod and exposes a red band on the rod. Convair Instruments, Convair, Div. of General Dynamics Corp. (160-G)

WINDING STANDS. 4-page brochure and flyer illustrate line of winding stands including single winding stands, two shaft winding stands and turret winders. Hobbs Mfg. Co. (161-G)

BLISTER PACKAGING. 24-page booklet of information for users of blister packages. Booklet includes sections on growth and advantages, selecting the right thermoform, plastic, stock, printing process, ink, products successfu in blister, skin and slide packs, etc. The ackmeyer Corp. (162-G)

POLYSTYRENES. 24-page booklet on this company's polystyrenes gives applications and types for normal and modified polystyrenes; general information, design considerations, fabricating techniques, finishing operations, etc. Plastics Div., Koppers Co., Inc. (163-G)

LIQUID FILLING MACHINES. 8-page brochure describes, illustrates, and gives specifications for line of liquid filling machines, including rotary filling machines, semi-automatic filling machines, gravity fillers, nitrogen depositing machines, "bottom up filler" and accessories. MRM Co., Inc. (164-G

PAPERS. Pocket-size folder contains 7 samples of ebony black paper, plain and embossed. Prices and ordering information included. Matthias Paper Corp. (165-G)

BOTTLE CLOSURES. Folder contains 8 data sheets on pilfer-proof seals, seals for carbonated drinks, and sealing machines for these closures. Metal Closures Ltd. (166-G)

UNIT PACKAGING. May issue of this company's monthly publication describes unit packing service available: packaging materials available are suitable for food and drug use and included cellophane, poly-cell, acetate-pliofilm, paper-polyethylene, etc. Packs tablets or capsules, can be modified to handle powders or liquids. Nysco Laboratories Inc. (167-G)

PAPER SIZING. Illustrated brochure describes grease and oil repellent paper size which is said not to affect porosity, color, strength, etc., of the paper itself. Minnesota Mining & Mfg. Co., Chem. Div. (168-G)

ALUMINUM AEROSOL CONTAINERS. 8-page folder describes seamless aluminum aerosol containers suitable for hair sprays, nasal or throat sprays, cologne, or deodorant. From ⅛ to 4 fl. oz., with plain, coated or decorated finishes. Peerless Tube Co. (169-G)

VACUUM COATING. 4-page folder describes process for vacuum metallizing polyethylene squeeze bottles. Process gives bottles greater sales appeal, reduces permeability; corrosion and abrasion resistant coatings, electrical and electronic coatings also available. Poly-Kote, Inc. (170-G)

CUSTOM PLASTIC FABRICATING. Series of case histories, which shows how customers solved problems with a flexible plastic fabricated product or component part. This issue discusses hospital patient-identification bands. Polo Plastics Co. (171-G)

CORRUGATED BOXES. 28-page booklet entitled "How to Merchandise with Corrugated Boxes," discusses show packaging, value of display, planning points in merchandising packages. Hinde & Dauch, Sub. West Virginia Pulp & Paper Co. (172-G)

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EQUIPMENT • SUPPLIES • SERVICES

FIBREBOARD CONTAINERS. 12-page illustrated brochure covers developments this company has made in various packaging fields, including fibre packaging innovations and closures ideas, and the work of this company's technical departments. R. C. Can Co. (173-G)

SKIN PACKAGING. Four-page folder describes fully automatic skin packaging machine which can handle up to 60 4x6" individual packages per minute. Also a manual model using this company's low-cost thin gauge film. Advantages and specifications given. Riegel Paper Corp. (174-G)

BOX FOLDER - GLUER - STITCHER - TAPER. 14-page booklet describes multi-purpose automatic folder that will process solid fibre as well as A, B, C, double face or double-double corrugated fibreboard box blanks. Range of box sizes is 12" deep x 25" long to 54" deep and 107" long. S&S Corrugated Paper Machinery Co., Inc. (175-G)

GIFT ITEMS. 22 pages of data sheets list many gift items available, including plastic rain hoods, memo pads, change purses, portfolios, etc. Prices, specifications included. A. J. Siris Products Corp., Sirco Mfg. Corp. (176-G)

SHEAR/SCRATCH TESTER. 4-page illustrated bulletin gives operating instructions for testing the surface quality of organic rigid sheet materials, and coated surfaces to resist digs, scratches, scrapes and similar damage not classed as normal wear. Taber Instrument Corp. (177-G)

NET WEIGHT PACKING SCALE. 4-page brochure illustrates this five-pound capacity net weight packing scale which is designed for check-weighing, filling, issuing predetermined quantities and count-by-weight operations. Toledo Scale, Div. of Toledo Scale Corp. (178-G)

PRESSURE SENSITIVE TAPES AND LABELS. 12-page illustrated booklet gives planning guide for use of pressure sensitive tapes and labels; includes information on large variety of uses, backing materials. Topflight Corp. (179-G)

BAGGING MACHINERY. Data sheet illustrates and describes cartridge-loading bagger with shorter chassis length, jet-air bag-opening system, pre-loading bags in interchangeable cartridge magazines. Tele-Sonic Packaging Corp. (180-G)

VISUAL WEIGHT INDICATORS. 4-page illustrated brochure features equipment showing weights on direct reading dials. For use where printed weights are not required. Streeter-Amet Co. (181-G)

VARIABLE TRANSFORMERS. 8-page brochure describes compact 50/60 cycle variable transformer series having output ratings up to 3.75 amperes with constant current loads and up to 5.5 amperes with constant impedance loads. Superior Electric Co. (182-G)

INKS. Three new colors of letterpress and litho inks (Fire Orange, Saturn Yellow and Neon Red) are included with seven other printing ink colors in color guide. Both one and two impression effects of each color are shown. Switzer Brothers, Inc. (183-G)

ADHESIVES. March issue of company's adhesive publication discusses role of adhesives research in maintenance of quality standards, "specification adhesives," and gives guide to adhesive properties. The Arabol Mfg. Co. (184-G)

BEER BOTTLES. 28-page booklet covers features of this company's glass plant. Describes and gives pictures of complete bottle-making process. Armstrong Packaging. (185-G)

PACKAGING MACHINERY. Illustrated catalog gives general description, uses, specifications for automatic roll wheel cutter, razor blade slitter and rewinder, shear cut slitter, angular sheet cutter, sheet-printer, can imprinter, set-up box lidder, tear stripper. Charles Beck Machine Corp. (186-G)

CAST COATED PAPERS. 16-page booklet covers the printing, scoring and mounting of this company's cast coated papers. Discusses finish, flatness, resilience, absorption, printability and fold qualities. The Champion Paper and Fibre Company. (187-G)

LABEL PRINTER. Small folder gives samples of labels printed by label printer designed to meet needs of packagers having changes in products, ingredient statements, weights, prices, special promotions. Markem Machine Co. (188-G)

LUNCHEON MEAT PACKAGING. 4-page brochure discussing packaging of luncheon meats. Includes packaging cost analysis and method of comparisons Modern Packaging Co. (189-G)

AEROSOL HEAT AND LEAK TEST TANK. Illustrated 4-page folder describes and gives specifications for heat and leak test tank for aerosols. Tanks have from 30 to 120 cans per minute capacity. Island Equipment Corp. (190-G)

PACKAGING MACHINERY. 4-page bulletin describes and shows filling, packaging, wrapping, and paper box machines. Specifications, applications listed. Machinery & Chem. Corp., FMC Packaging Machinery Div. (191-G)

ELECTRICAL CUTTING MACHINE. 4-page brochure illustrates and describes single knife cutting machine which will make any size width cut down to 1/16" and will accommodate any roll of material up to 72" in width and 12" in diameter. Oscar I. Judelshon, Inc. (192-G)

DISPLAY PACKAGING. 4-page folder describes custom transparent "floating 'skin' packaging" service. Product and display card are enfolded in tough, transparent film; package can be hung from pegs or stacked on shelves. The Nevins Co. (193-G)

PHOTO-COMPOSING MACHINE. 2 illustrated data sheets describe two automatic step and repeat and photo composing machines with punch card control. Used for labels, stickers, wrappers, etc. Entire job is produced automatically on film, glass or metal plates. Royal Zenith Corp. (194-G)

PACKAGING MACHINERY. 4-page brochure pictures and gives description of fully automatic case former, accumulator, packer and sealer all in one unit. Machine automatically selects, feeds, opens, and forms a case, packs it in any desired pattern and seals it ready for the road. Schroeder Machines Corp. (195-G)

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Write: Dennison—Box Division, Marlboro, Massachusetts

Dennison HELPING YOU COMPETE MORE EFFECTIVELY

CSMA survey discloses current trends in aerosol industry

Some 670,000,000 aerosol containers were produced last year for non-food use in the U. S. and Canada, 17% more than in 1959. Another 59,509,566 (estimated) were produced for food use. These new figures are from the 10th annual Aerosol Pressure Products Survey (covering non-foods only), sponsored by the Chemical Specialties Mfrs. Assn. and released during CSMA's recent mid-year meeting in Chicago.

Since 128 aerosol users responded for last year compared with 115 in 1959, individual product figures are not directly comparable. However, some trends are evident.

Shaving-cream production in 12- to 16-oz. containers totaled 306,138 units in 1959 and rose to 2,506,908 units in 1960. At the same time, production of shaving cream in 6-oz. or smaller containers declined from 51,952,158 units to 46,088,108. So it is clear that larger sizes have gained sharply in popularity for this product category.

Small sizes of perfume and cologne, however, almost doubled in production during the period. One-ounce or smaller aerosols for perfume rose from 3,481,034 units in 1959 to 6,373,287 units in 1960. One-ounce or smaller sizes are also in growing demand for pharmaceutical products, up from 6,279,731 units in 1959 to 8,548,823 units in 1960.

CSMA's meeting drew the largest mid-year registration ever, reaching a total of nearly 1,000.

Those in attendance heard various speakers from industry describe the latest aerosol developments. Discussing the current status of propellants, Robert J. Peterson, Peterson Filling & Packaging Co., cited expectations for Freon C-318, a fluorinated hydrocarbon intended for food use pending F&DA approval. Such propellants are said to give a better dispensing pattern and may open up aerosol packaging to products such as whipped butter, which have been packaged in other ways. Mr. Peterson also sees potential in hydrocarbons such as n-butane, isobutane and propane, if the flammability problem can be overcome. Mr. Peterson believes the hydrocarbons should be tested as rigorously as the fluorocarbons have been, but warned the aerosol industry to "resist any pressures to instigate new tests which would specifically rule out hydrocarbons as propellants."

John S. Hinn, Air Reduction Co., outlined the advantages of nitrous oxide as a propellant for non-foods. Since nitrous oxide is soluble in water, oil or alcohol, it releases at a much slower rate than do insoluble gases during periods when product or head-space gas is being withdrawn normally from the aerosol container. Hence, pressure drop is slight, said Mr. Hinn.

Discussing advantages made in dispensing, A. H. Yoemans of the U. S. Dept. of Agriculture urged aerosol packagers to watch for a new metering mechanism usable with standard valves. When perfected, the new device will not only operate at regular time intervals, but will also keep the valve open for any predetermined time. Research by the Department of Agriculture has been aimed at giant-sized aerosols designed for large-scale dispensing of insecticides. ●

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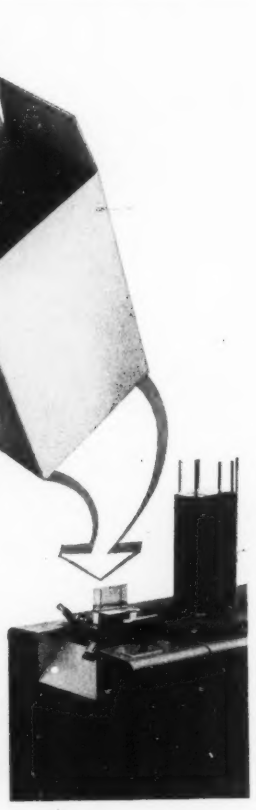

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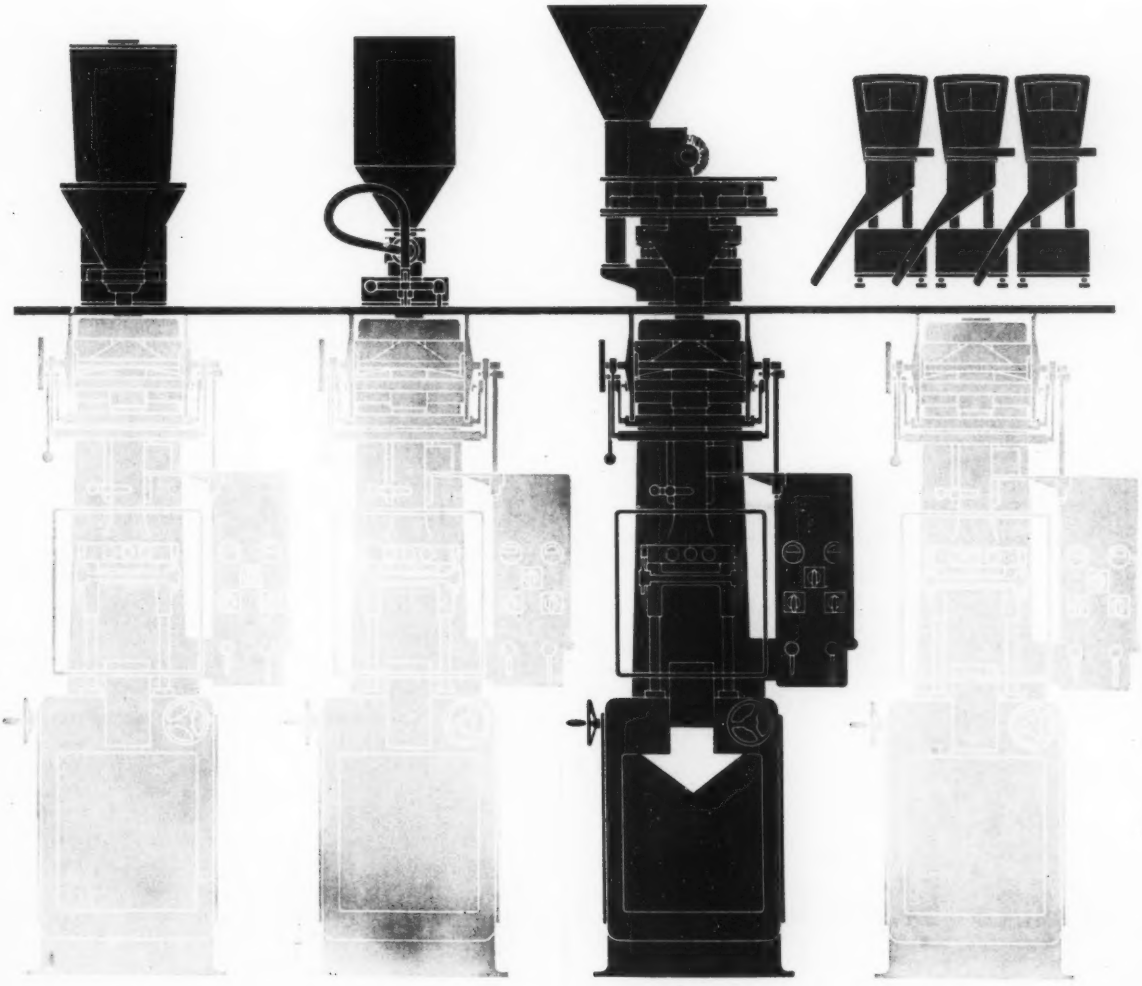

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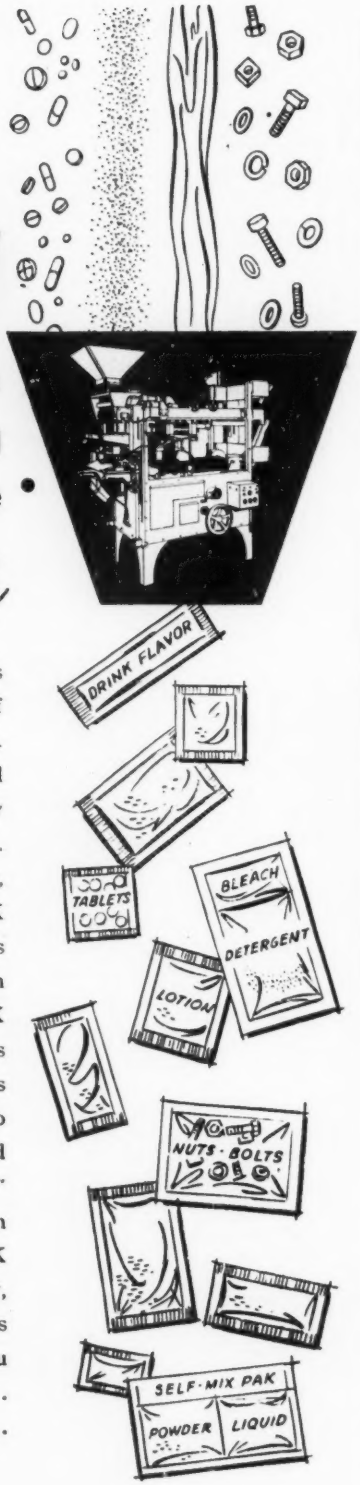

J. M. NASH COMPANY, INC.

103 Jackson Street
Oshkosh, Wisconsin

New polymer for wax

[*Continued from page 140*]

per unit of time. Further differences in coating weight can be achieved by varying the speed of passing the material through the curtain, a faster speed stretching the curtain to a thinner coating.

The advantages of curtain coating are that pre-printed carton blanks are coated with a minimum waste of coating material; waste trimmed prior to coating is recoverable; printing problems usually associated with polymeric coatings are minimized or eliminated, and rigid packaging materials such as corrugated boxboard can be coated.

Summary

The Elvax vinyl resins, copolymers of ethylene and vinyl acetate, are versatile, high-molecular-weight resins which are compatible with paraffin wax. Blends of paraffin wax containing 30-40% Elvax can be applied as hot melts to a wide variety of packaging materials. The coatings thus produced have exceptional water-vapor-barrier properties and can be heat sealed with good bonding to the packaging materials in use today. ●

Faster pouching

[*Continued from page 97*]

cam to open or close the ball valves to a greater or lesser degree and thus modify the resistance to product flow. Smaller changes in fill can also be made by speeding up or slowing down the operation of the machine, which changes the time available for product flow. So accurate is this system that filling weights are controlled within $\pm$ 0.02 gm., according to officials of the contract-packaging firm which handles the entire operation for the International Salt Co.

While these machines are specifically built for the 2½-by-1½-in. salt and pepper pouches, the principle should be applicable to any size of package, as well as to any type of free-flowing product. In this system, though, speed of fill is halved when the volume is doubled. Thus, even though tubes of a larger diameter will improve the speed, more heads would be necessary to maintain the total output attained with these small packets. ●

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One of 47 different cartons produced by Warner Brothers Company for Prince Matchabelli — printed letterpress on .018 LusterBoard.

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Methods of evaluating new packaging ideas

The care and feeding of packaging ideas is of such major and continuing importance to today's corporate executives that the American Management Assn. devoted a three-day orientation seminar to this subject in New York recently. The seminar attempted to discover how responsible company officials get and evaluate new packaging ideas.

Evident at the seminar was the fact that methods used to judge new ideas are as varied and numerous as the ideas and companies involved. Varied as these methods appear to be, however, some general trends seem to show the direction in which packagers are moving.

Among them is the rather rapid replacement of the traditional packaging committee with a single packaging coordinator. Whether he is essentially in marketing, advertising, in market research, product management or in some other area seems to depend upon the nature of the company and its products. In the Cooked Frozen Foods Div. of the Stouffer Corp., for instance, James M. Biggar, director of marketing, has the ultimate responsibility for all packaging policy and strategy. At J. Wiss & Sons, which, instead of having a single outlet has more than 60 types of sales outlet for its scissors, L. D. Connell, merchandising manager, is the final arbiter. James D. Stocker, advertising manager, is the packaging coordinator for Scott Paper, because of the role that advertising must play in the total marketing of facial and toilet tissues and similar products. In the marketing of Corning Glass' Corning-Ware line, where product protection and a neat, gift-like appearance are of utmost importance and items in the line vary considerably in weight, shape and size, each person responsible for the end product is responsible for the package. There is liaison with a corporate-level staff design group to give packages a related surface design.

Marketing research plays the key role in the packaging plans of Beech-Nut Life Savers. Harry L. Smith, manager of marketing research operates on the premise that only marketing research can give assurance of the "third O.K."—consumer approval. Many of those participating in the seminar felt that uniform research standards would help management favor allocating extra funds for packaging research.

Robert Glass, Publicker Distillers, whose problem is to maintain and if possible increase his company's share of a relatively stable product, believes that for his business the purchasing department should have a great deal of final responsibility.

Myron J. Helfgott, vice president of Lippincott & Margulies, noted that corporations are coming to realize that packaging—as opposed to advertising—"is one of the cheapest ways of communicating today." Since only so many dollars can be spent on communications in the marketing plan, he said, management must consider packaging an area where a given number of well-spent dollars can potentially yield a greater and longer-lasting return. Unlike advertising, "oldness of a package is its value" and helps encourage re-purchase. "Hidden" packaging values—such as a convenient resealing feature—are primary motivators of this re-purchase. ●

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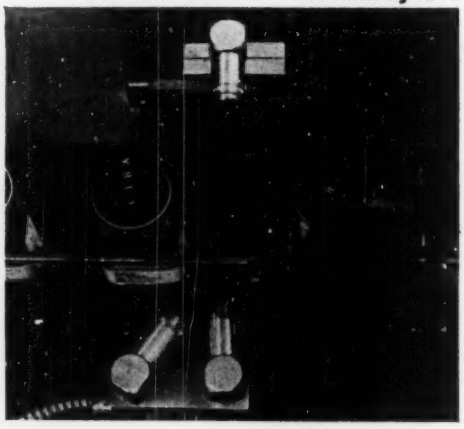
with miniaturized "electric-eyes"!



Here is a typical engineered job by PHOTOMATION. It is only one example of the many applications of miniaturized "electric-eyes" for inspecting, counting, registration, sorting, quality control and all phases of packaging.

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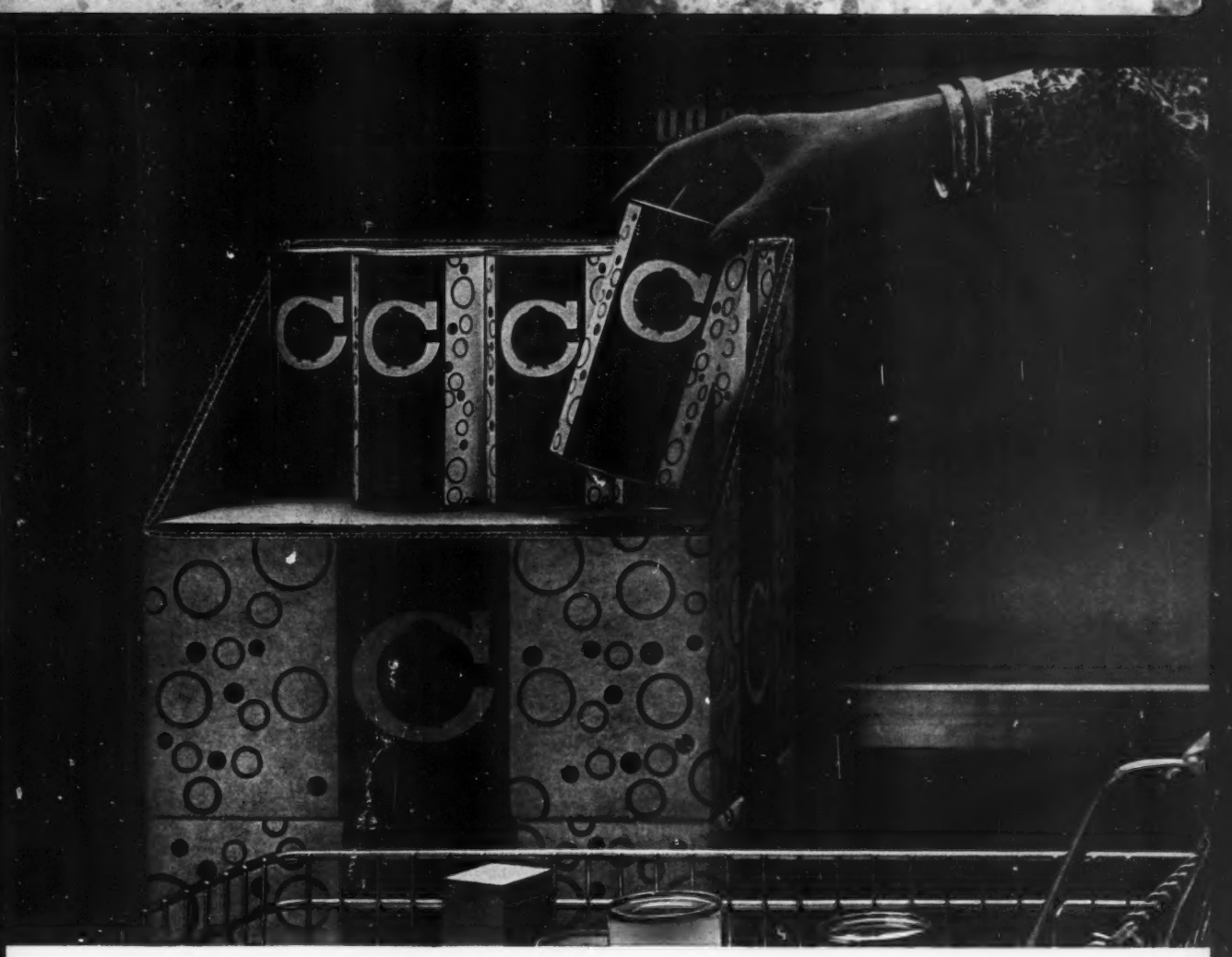

PROBLEM: How to get sales appeal in your shipping container without the cost of three-color printing.

SOLUTION: International Paper's new *pastel* Gator-Hide® linerboard gives you *three* colors with two-color printing.

THIS DISPLAY container was made with two-color printing—on one of International Paper's new Gator-Hide pastel linerboards.

These amazing new linerboards are the lightest and brightest you can get without printing color on expensive bleached board.

They are typical of the wide range of fine linerboards available to you in the famous Gator-Hide series. Their purpose: *better* packaging at *lower* cost.

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International Paper can provide you with paper packaging that is designed *—from the very beginning—*to suit your product.

Call any one of our twenty-two Container Division plants. Or contact your boxmaker. He has probably been doing business with us for years.

INTERNATIONAL PAPER

NEW YORK 17, N.Y.

Manufacturers of papers for magazines, books and newspapers • papers for home and office use • converting papers • papers and paperboards for packaging • shipping containers • folding cartons • milk containers • multiwall bags • grocery and specialty bags and sacks • pulps for industry • lumber, plywood and other building materials

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An Alphabetical List of Suppliers to the packaging field—accurate, up-to-date?

YOU'LL FIND THEM IN

the Directory Section of the 1961, 854-page MODERN PACKAGING ENCYCLOPEDIA ISSUE. And—be sure to check the *advertisements* of the companies whose products or services you're investigating.

MODERN PACKAGING ENCYCLOPEDIA ISSUE

A BRESKIN PUBLICATION

Dehydration is back

[*Continued from page 94*]

initial developments appear to be more conspicuous among processors of meats, seafood and poultry, the value of which is sufficiently high to justify freeze-drying costs as a reasonably small percentage of final total processing and packaging costs.

The freeze drying of fruits and vegetables may come later, provided important quality improvement justifies the costs.

Meat packers are enthusiastic, too, because packaged freeze-dried products offer the opportunity for the meat-packer's brand to be carried all the way to the consumer's shelf—something they have always been seeking. Lower transportation costs, due to weight reduction and elimination of refrigeration, they point out, will help to offset processing costs. The indefinite storage advantage offers opportunity to decentralize processing of the meats as well as the packaging operations, thereby permitting shorter hauls of the unslaughtered live stock.

The whole development is something to be watched closely by everyone concerned with packaging—especially if the products turn out as William Wood Prince, Armour chairman, says they do: "Our beef stew tastes like it just came out of Mother's kitchen." ●

Sounding Board

[*Continued from page 61*]

Charm" theme again and again, thereby gaining thousands of added exposures for all of our products and all of our packages.

It would be our candid observation that if other companies involved with packaging were to establish a visual theme that would be exclusively their own, the problem of sameness would not be prevalent. Instead, the wonders of today's technology would be employed in a positive way to multiply the look that is unique to that particular company.

One of the most direct ways to achieve this result is the retention of a competent designer or design firm, as well as an advertising agency that is sympathetic to integrated visual design programs. By a coordination of these talents, an effective graphic program can be initiated and continued. ●

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A Subsidiary of Brockway Glass Co., Inc.

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FORMSEAL

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Max. depth of draw: 3¼"

Machine measurements: Length — 9' 7", Width — 2' 5", Height — 4' 10"

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Top awards in the St. Regis Paper Co.'s Collegiate Packaging Design Contest went to University of Florida entries in dry-food packaging (left) and in ice-cream packaging.

Winners in student design contest

Growing interest in package design as a career was evidenced by the record number of entries—375—submitted this year in St. Regis Paper Co.'s annual Collegiate Packaging Design Contest. The competition, which applies to folding-carton design only, is open to all students attending college in the eight states where the company's Folding Carton Div. has plants. Prizes to national winners, state winners and their schools totaled nearly $4,000.

This year Floridians garnered top honors in both of the competition's design categories. The national award for dry-food package design went to James Hernandez, the national award for ice-cream package design to Thomas R. Salt. Both are students at the University of Florida. The two national winners each received a $100 savings bond, while the University of Florida was awarded $400 for the furtherance of graphic-arts instruction.

All contestants used carton blanks supplied by St. Regis and were instructed to use the same fictitious brand names and a maximum of four colors in their designs. Entries were judged on four points: (1) potential of the design, (2) originality of the selling copy, (3) aptness of design to product and (4) quality of rendition. The 10 judges were impressed by the professional quality of the winning designs. What was said to be a disappointing calibre among many non-winning entries made it clear that standards must still be raised in the teaching of package design. Competitions such as St. Regis' spotlight areas where packaging instruction is being neglected and reward those where important progress is being made in this field. ●

Electrical standards for machinery sought

The need for standards on electrical and electronic components used in packaging machines was graphically pointed out to more than 130 engineers from packaging companies and manufacturers of electrical components and packaging machines at a recent two-day conference of the Packaging Industry Subcommittee of the American Institute of Electrical Engineers in Swampscott, Mass. This was the first annual symposium for this committee.

The new standards group, a branch of AIEE's Joint Industry Committee, was formed in October, 1959, by a few engineers from packaging-machinery supplier and user companies to lay down rules for construction and operation of electrical devices. So numerous are new electrical components for packaging equipment and so diverse their types, voltages and methods of operation that even experienced electrical engineers at the conference reported confusion on which device to choose for specific applications. This situation was underscored by two new-product sessions that introduced many new types of thermistors, ultrasonic detectors, silicon-controlled rectifiers, relays and solenoids used in packaging machinery.

At successive luncheons, Laurence Zahn, president of the Packaging Institute, and William Anthony, Jr., vice president of the Packaging Machinery Mfrs. Institute, both pledged the cooperation of their groups in the work of the committee. Most members of the AIEE subcommittee are also members of one or the other of these packaging organizations. ●

F&DA clearances

First formal clearance of a large group of packaging materials by the Food & Drug Administration under the Food Additives Amendment of 1958 occurred in early June with the long-awaited approval of two major petitions on polyethylene and several equally important clearances of cellophane.

The polyethylene clearance, published in the *Federal Register* of June 10, p. 5226, was broad in scope—except that it ruled out cook-in applications where polyethylene is used as a heat-seal coating on film or board. But these uses are extended (p. 5221) until July 1, 1962, with an interim report on testing demanded by Jan. 1, 1962.

The cellophane order primarily clears coatings, since regenerated cellulose has been accepted as safe by F&DA for some time. Published June 3 in the Federal Register (p. 4944), this regulation accepts additives that are generally recognized as safe, those that have been cleared by prior sanction and a long list of optional ingredients formally cleared by data submitted with the petitions. ●

Ultrasonics: When?

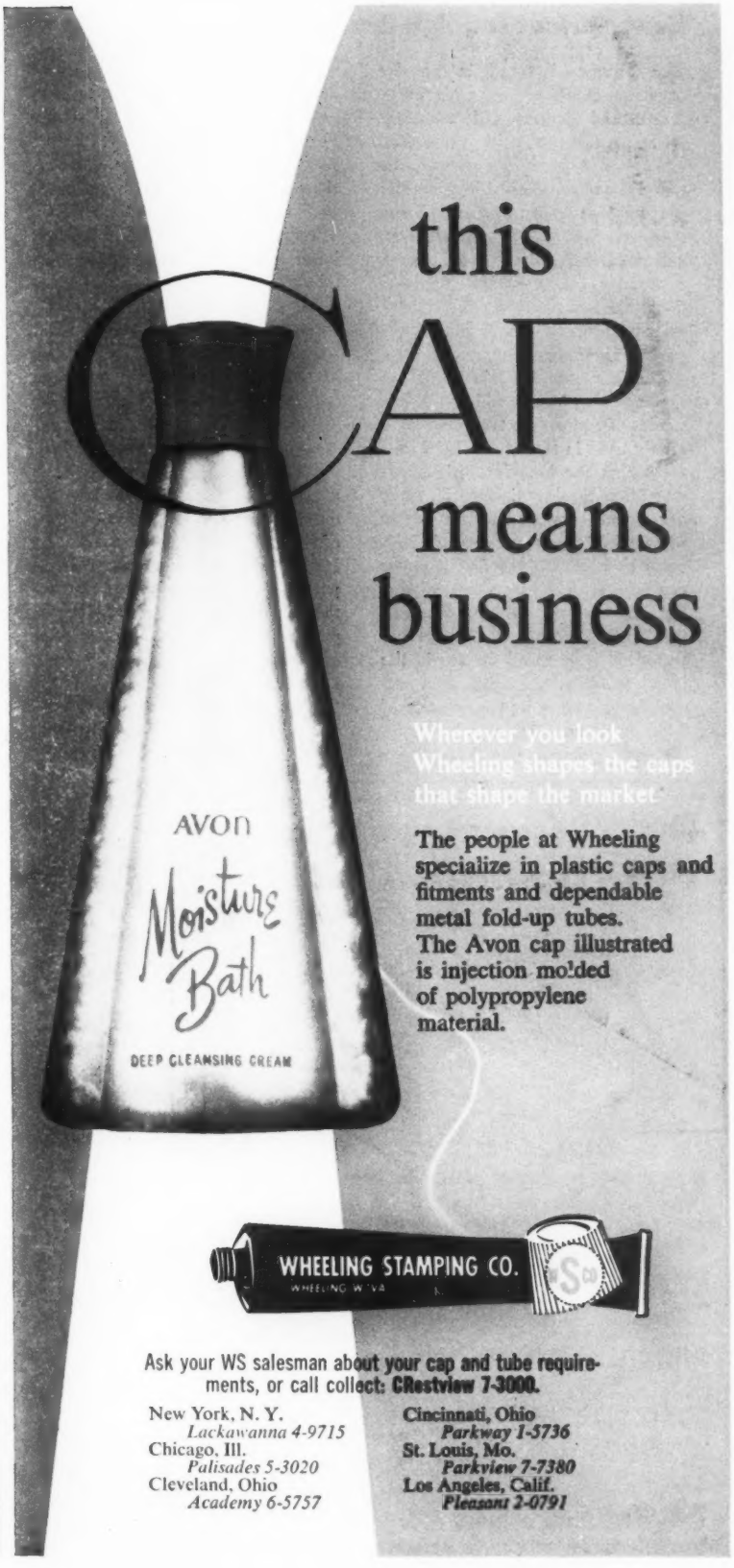
[*Continued from page 104*]

same strength as the standard-type $^3/_{16}$-in. heat seals.

It now appears to be only a matter of time before these more efficient ultrasonic welding heads are combined with the mechanical actions that are most effective in packaging operations. This marriage of techniques from two previously unrelated industries seems certain to add a valuable new method and technique to the packaging field.

Acknowledgments

Information and assistance in preparing this article have been received from the following ultrasonic-equipment producers: Aeroprojects, Inc., West Chester, Pa.; Gulton Industries, Inc., Metuchen, N. J.; International Ultrasonics, Inc., Cranford, N. J.; Mayflower Electronic Devices, Inc., Little Ferry, N. J.; Powerton Ultrasonics Corp., Garden City, Long Island, N. Y.; Raytheon Mfg. Co., Norwood, Mass.; Ultrasonic Industries, Inc., Plainview, Long Island, N. Y., and Ultra Sonic Seal, Inc., Ardmore, Pa. ●



Lower prices for high-density polyethylene

The downward trend in plastics prices continues to make big news. A late and significant development is an across-the-board price cut, averaging 3 cents per pound, by every major supplier of high-density polyethylene resins. The price break —which affects general-purpose film- and molding-grade resins as well as a number of specialty grades— doubtless will bring a greatly accelerated upsurge of this plastic for packaging applications.

The price for 0.945-density injection-molding and blow-molding grades of resins (the type most commonly used in manufacturing blown containers for household chemicals and other liquids) is now 35 cents per pound, compared with a former price of 38 cents per pound. Hercules Powder Co., the first supplier company to announce a revised pricing schedule, also has introduced an 0.932-density resin at 32 cents per pound. It is designed for use in the blow molding of rigid, thin-wall containers with a liquid capacity of 1 gal. or more.

General-purpose film-grade resins (0.950-0.960 density) have also dropped 3 cents per pound, to 33½ cents, in the new pricing set-up. Some special high-strength film compounds have undergone price reductions which range up to as much as 5 cents or more per pound.

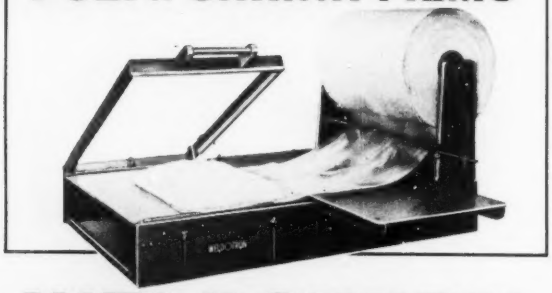
The major significance of the new lower price for high-density polyethylene resins obviously is in the field of blow molding. Last year, consumption of blown polyethylene containers spiraled to an annual rate of nearly a billion units, compared with only 515 millions in 1959. (See "Plastics Today and Tomorrow," MODERN PACKAGING, June, 1961, p. 95.) Even before the announcement of resin-price reductions, industry experts were talking in terms of a three-billion-unit market by 1965 for blown bottles alone. These projections did not take into account the now discernible (and rapidly expanding) trend toward high-density industrial containers ranging from 1- to 80-gal. in capacity. In view of the suddenly more favorably polyethylene price situation, it appears to be a pretty safe bet that all the rosy prognostications actually will prove to have been conservative.

The lower prices, coupled with improved heat sealing of high-density polyethylene film, may also help improve this material's position in the packaging field.

Reasons for the high-density-polyethylene price cuts vary according to who's doing the talking. One view is that detergent and bleach bottlers, comprising an impressive customer bloc, have successfully pressured the industry for price reductions. Another is that increasing volume has forced a revaluation. Whatever the reason, the prices are down and packagers everywhere stand to benefit from the reduction.

In other areas of the plastics-pricing front, two film suppliers have just made substantial reductions. Goodyear reports price cuts ranging up to 6% for its Vitafilm plasticized-vinyl packaging film. Riegel Paper Corp.'s Drapex III, a polyethylene-coated-polycarbonate skin-packaging film, is now available at 16% less than its introductory price. The reduction in price now brings the film, in 3-mil gauge, down to 32 cents per 1,000 sq. in. ●

NOW! one-stroke packaging in POLY or SHRINK FILMS



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Whether you use regular poly-films or the increasingly popular shrink films, the package can be formed faster and at lower cost with portable Multi-Seal. It seals all open sides of V-folded films with just one stroke. Uses power only for an instant while the seal is made because it is a thermal impulse unit — the best type of machine for use with shrink films. Forms bags 2" to 24".

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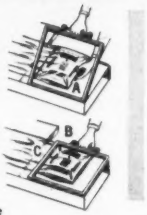

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Winners in Du Pont student project

A fresh, uninhibited approach to packaging problems, suggesting ideas for many fields, is revealed by 130 candy-package designs created as part of a student project sponsored by Du Pont's Film Dept. and three leading design schools: Institute of Design at Illinois Institute of Technology, Chicago; Carnegie Institute of Technology, Pittsburgh, and the Philadelphia Museum College of Art.

The purpose of the project was to acquaint industrial-design students with typical commercial packaging problems and to encourage the finding of solutions best suited to the students' academic objectives.

Packaging design specialists from the Du Pont Film Dept.'s market development and customer service laboratory visited the three schools to give orientation sessions. They discussed film types, demonstrated film-handling techniques, explained production requirements and pointed out the basic principles that are inherent in effective package design.

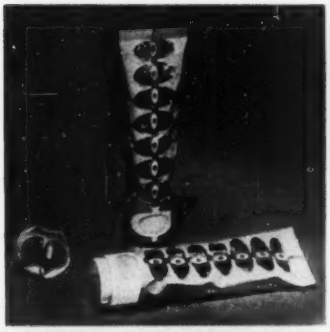
The result was a broad variation in approach which pointed up many new avenues for candy merchandising and protective packaging.

The three top-scoring students' work in the contest included such original constructions as strip packs of fruit balls, a color-coordinated checkerboard pack of licorice and a cellophane tube with a rigid plastic top that turns to dispense individual pieces of candy.

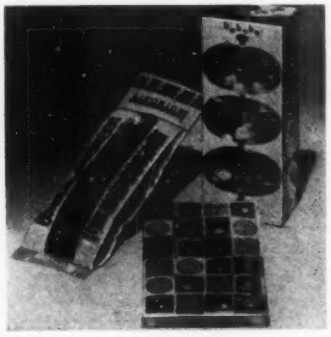
Among other imaginative ideas: a candy-stick carousel in which the strings that secure the candy in the package act as tear tapes to unwrap each stick; tetrahedron-shaped strip packages; candy Easter eggs in unusual-shaped packages made of scored, coated board; candy corn place packed in the shape of an ear of corn; a folding four-tray pack to hold four different varieties of candy ready to serve when the pack is unfolded, and several whimsical packs in the shape of animals and other figures.

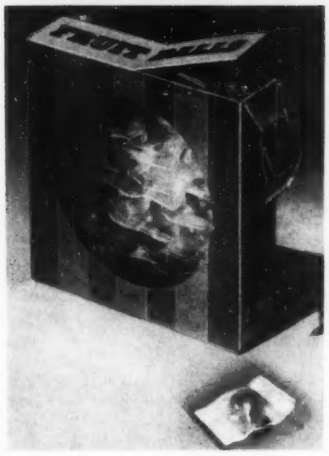
The three top-rated students, whose package designs are illustrated and described here, were taken on an all-expense tour to the National Packaging Show, which was held recently in Chicago. ●

Twisting plastic top permits one piece of candy to be dispensed at a time from cellophane tube. Design by Gary Gerber, Philadelphia Museum College of Art.



Color coordination of package and candies was objective of black and white cellophane bag. Design by Georgiana Chappel, Carnegie Institute of Technology, Pittsburgh.





Strip pack of fruit balls is constructed to dispense each tear-off unit from window carton. Design by Richard Demme, Jr., Institute of Design, Illinois Institute of Technology, Chicago.

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SKIN PAK MACHINE—Model F, 220 volt, 60 cycle, card size 22" x 34". Semi-Automatic including Vacuum Pump with 3 phase 220 volt motor. Skin Pak Machine—Front to Back Design—Model, F, 22" x 34" card size, Wired for 220 volt, 60 cycle, including vacuum pump with 3 phase, 220 volt motor. Automatic heater travel. CC Cross Cutter Slitter, manufactured by Appleton Machine Company. Contact: Red Devil Tools, 2400 Vauxhall Road, Union, N.J.

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FLEXIBLE PACKAGING SALESMEN—Eastern and Midwestern Territories open. Complete line cellophane, polyethylene, saran, roll stock, bags, sheets, plain and printed. We have quality service and competitive prices. Only experienced, qualified men need apply. Lustreprint Corp., 1800 Broadway, Buffalo 12, N.Y.

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PACKAGING DEPARTMENT SUPERVISOR—Progressive midwestern manufacturer of biologicals and pharmaceuticals desires aggressive individual to take complete charge of entire packaging operation. We are looking for a man with experience in handling people, knowledge of labeling machinery and packaging supplies. Mechanical aptitude and interest essential. Degree desired, but not required. Our firm offers: 2 week paid vacation. Complete sick leave benefits. 7 paid holidays per year. Liberal profit sharing plan. Paid hospitalization and life insurance. Salary commensurate with experience and training. Send full resume and photo to Box 705, Modern Packaging.

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CORRUGATED BOX SALES EXECUTIVE immediately available to direct (or assist) your entire sales and product development effort. This high calibre, profit-minded executive has a broad 10-year background and experience in corrugated sales, sales management, production, costs, pricing, customer relations, etc. College education, ambitious, energetic, and imaginative. Interested in relocating. Write to box 712, Modern Packaging.

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Blister Packages of Butyrate Sheet

Shoppers for tools are like shoppers for most things... they reach for merchandise that's quality-packaged to stay factory-new, and clearly displayed for a close look—important factors in self-service. With this thought in mind, Fuller Tool Company began blister-packaging its pliers in sheet extruded of tough Tenite Butyrate... and sales almost doubled.

Notice how the blisters have been formed to fit the different sizes and shapes. The sturdy, transparent Butyrate plastic sheet keeps the pliers snugly in place, protected, and clearly visible. You can read every word on the cardboard backing.

Packaging is fast. The side edges of each sheet are firmly creased and folded under about ¼-inch. With pliers cradled in the blister, the cardboard is simply inserted into these grooves. Opening is just as fast —the resilient sheet can be slipped right off, permitting a prospective buyer to get the "feel" of the tool.

Sheet of Butyrate keeps its high gloss despite rough and frequent handling, and has the strength to hold contents of considerable weight. Yet it is readily heat-softened and deep-drawn to intricate shapes by thermoforming—a fast, low-cost process. And blisters may be easily applied to backing cards by means of heat sealing, as well as by stapling or flange-fit.

These advantages make blister-packaging with Tenite Butyrate popular for small things that have to be kept together... heavy things that have to be kept in place... delicate things that have to be protected... pretty things that have to be shown... a host of things a shopper wants to get exactly as packed at the factory.

For more information about packaging with Tenite Butyrate, write EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

TENITE®
BUTYRATE
an Eastman plastic

Pliers manufactured by Fuller Tool Co., New York 67, N. Y.; blister-packaged in sheet of Tenite Butyrate extruded by Joseph Davis Plastics Co., Kearny, N. J., and thermoformed by Plaxall Inc., Long Island City, N.Y.

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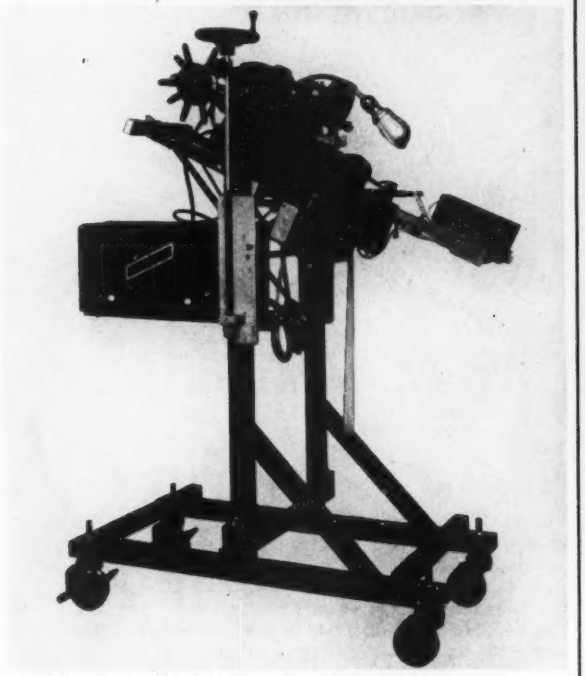

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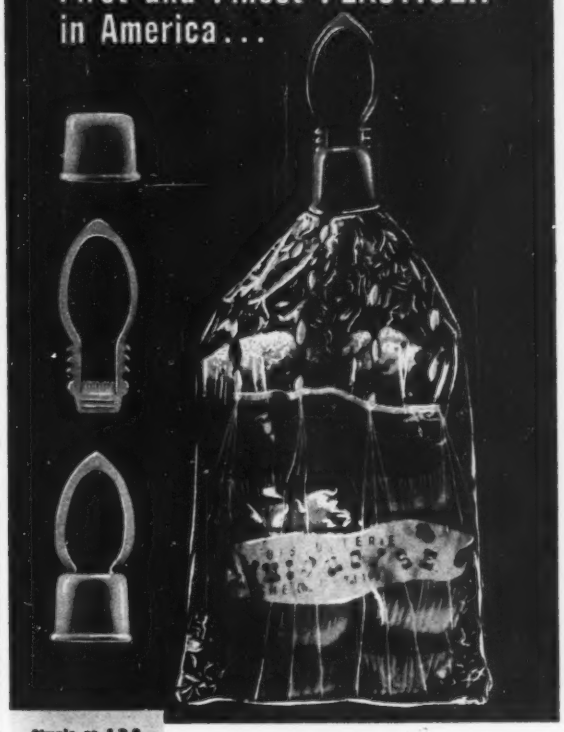

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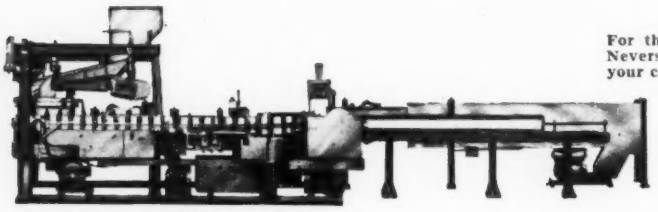

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